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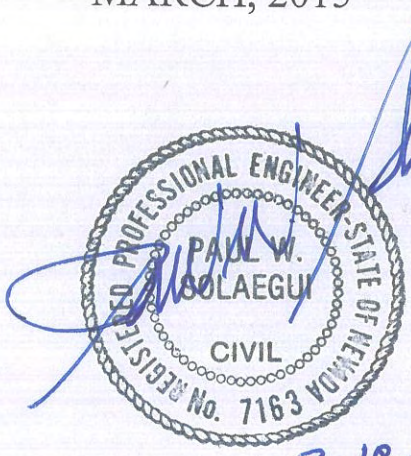
CAPITOL MALL

TRAFFIC ANALYSIS

MARCH, 2015



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TRAFFIC ANALYSIS

EXECUTIVE SUMMARY

The proposed Capitol Mall development will be located in Carson City, Nevada. The project includes two sites located east and west of Carson Street. The east site is bounded by Robinson Street to the north, Musser Street to the south, Stewart Street to the east, and Plaza Street to the west. The west site is bounded by Robinson Street to the north, Spear Street to the south, Carson Street to the east, and Curry Street to the west. The project sites are currently parking lots. The purpose of this study is to address the project's impact upon the adjacent street network. The Carson Street intersections with Robinson Street and Musser Street; the Stewart Street intersections with Robinson Street, Telegraph Street, Proctor Street, and Musser Street; and the parking garage driveways on Telegraph Street and Proctor Street have been identified for AM and PM peak hour capacity analysis for the 2020 base, 2020 base plus project, 2035 base, and 2035 base plus project scenarios.

The proposed Capitol Mall development will include the construction of a four-story parking garage with ground floor retail, a ten-story hotel building with parking garage, an eight-story office building with ground floor retail, an eight-story parking garage with ground floor retail, and a six-story office building with ground floor retail. The project will include a total of 421,200 square feet of office floor area, 61,200 square feet of retail floor area, 150 hotel rooms, and 1,600 parking garage spaces. The project is anticipated to generate 8,485 average weekday trips with 797 trips occurring during the AM peak hour and 944 trips occurring during the PM peak hour.

Traffic generated by the proposed Capitol Mall development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that the left turn pocket at the east approach of the Carson Street/Musser Street intersection be improved to contain a minimum of 100 feet of storage length.

It is recommended that the left turn pocket at the west approach of the Stewart Street/Robinson Street intersection be improved to contain a minimum of 100 feet of storage length.

It is recommended that that the west approach of the Stewart Street/Telegraph Street intersection be improved to include one exclusive left turn lane and one shared through-right turn lane. The left turn lane shall function as a center two-way left turn lane and extend west to the parking garage driveway.

It is recommended that that the west approach of the Stewart Street/Proctor Street intersection be improved to include one exclusive left turn lane with a minimum of 100 feet of storage length and one shared through-right turn lane.

It is recommended that the left turn pocket at the west approach of the Stewart Street/Musser Street intersection be improved to contain a minimum of 100 feet of storage length.

It is recommended that the Telegraph Street/Parking Garage Driveway intersection be designed to include one left turn lane and one through lane at the east approach, one shared through-right turn lane at the west approach, and one shared left turn-right turn lane at the south approach. The left turn lane shall function as a center two-way left turn lane and extend east to Stewart Street.

It is recommended that the Proctor Street/Parking Garage Driveway intersection be designed to include one shared left turn-through lane at the west approach, one shared through-right turn lane at the east approach, and one shared left turn-right turn lane at the north approach.

INTRODUCTION

STUDY AREA

The proposed Capitol Mall development will be located in Carson City, Nevada. The project generally includes two sites located east and west of Carson Street. The east site is bounded by Robinson Street to the north, Musser Street to the south, Stewart Street to the east, and Plaza Street to the west. The west site is bounded by Robinson Street to the north, Spear Street to the south, Carson Street to the east, and Curry Street to the west. Figure I shows the location of the project sites. The purpose of this study is to address the project's impact upon the adjacent street network. The Carson Street intersections with Robinson Street and Musser Street; the Stewart Street intersections with Robinson Street, Telegraph Street, Proctor Street, and Musser Street; and the parking garage driveways on Telegraph Street and Proctor Street have been identified for AM and PM peak hour capacity analysis for the 2020 base, 2020 base plus project, 2035 base, and 2035 base plus project scenarios.

EXISTING AND PROPOSED LAND USES

The project sites are currently parking lots. Adjacent properties generally include commercial development. The proposed Capitol Mall development will include the construction of a four-story parking garage with ground floor retail, a ten-story hotel building with parking garage, an eight-story office building with ground floor retail, an eight-story parking garage with ground floor retail, and a six-story office building with ground floor retail. The project will include a total of 421,200 square feet of office floor area, 61,200 square feet of retail floor area, 150 hotel rooms, and 1,600 parking garage spaces.

EXISTING AND PROPOSED ROADWAYS AND INTERSECTIONS

Carson Street is a four-lane roadway with two through lanes in each direction in the vicinity of the site. The speed limit is posted for 25 miles per hour. Roadway improvements include curb, gutter, and sidewalk on both sides of the street, a center two-way left turn lane north of Telegraph Street, and a raised center median south of Telegraph Street.

Stewart Street is a four-lane roadway with two through lanes in each direction in the vicinity of the site. The speed limit is posted for 35 miles per hour. Roadway improvements include curb, gutter, and sidewalk on both sides of the street with a double solid yellow centerline. On-street parking is not permitted on Stewart Street.

Robinson Street is a two-lane roadway with one through lane in each direction in the vicinity of the site. The speed limit is 25 miles per hour. Roadway improvements include curb, gutter and sidewalk on both sides of the street with striped left turn pockets at the intersections with Carson Street and Stewart Street. On-street parking is generally not permitted on Robinson Street.

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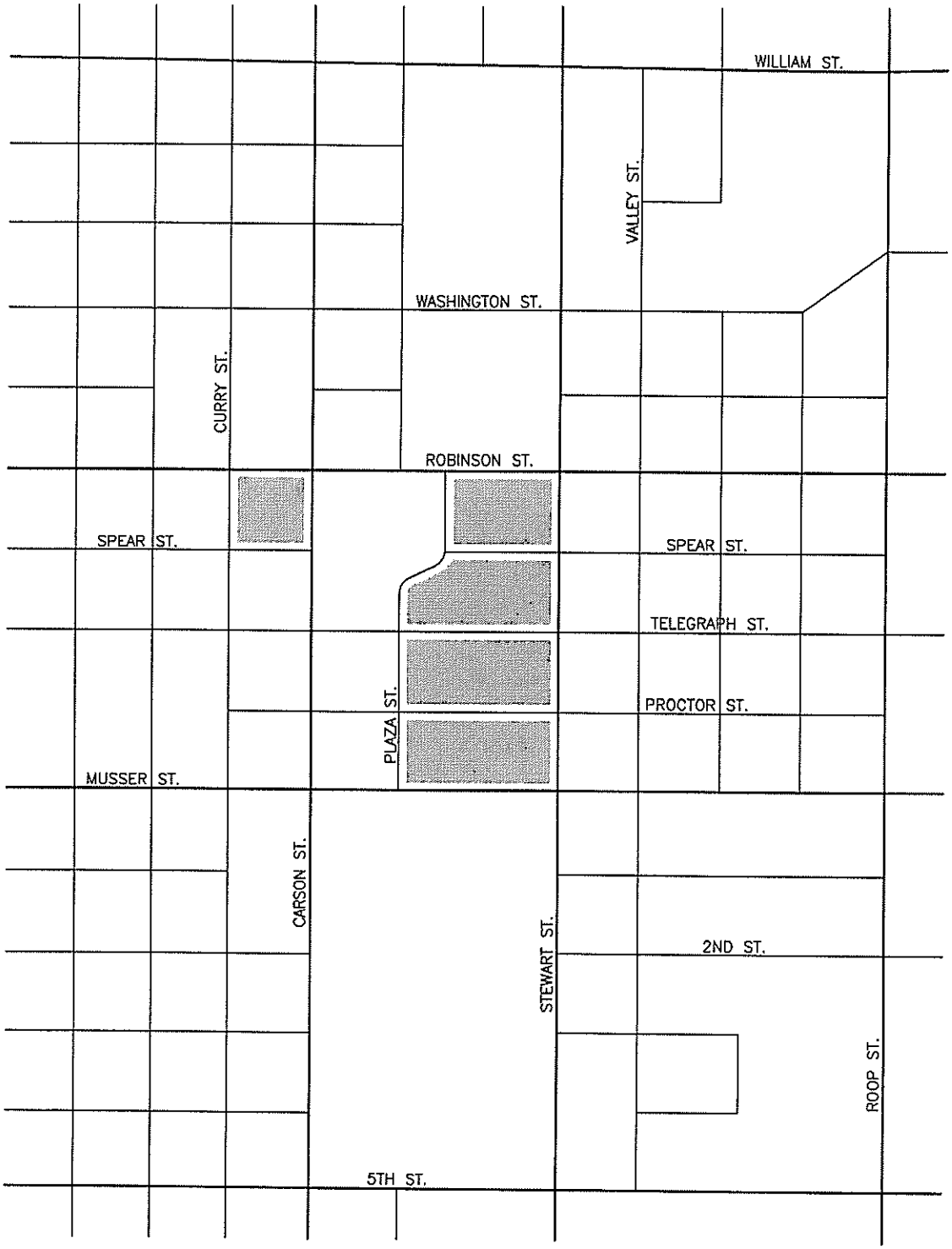
LEGEND

PROJECT SITE



CAPITOL MALL

VICINITY MAP
FIGURE 1

Musser Street is a two-lane roadway with one through lane in each direction in the vicinity of the site. The speed limit is 25 miles per hour. Roadway improvements include curb, gutter and sidewalk on both sides of the street with striped left turn pockets at the intersections with Carson Street and Stewart Street. On-street parking is permitted in most areas.

Telegraph Street is a two-lane roadway with one through lane in each direction in the vicinity of the site. The speed limit is 25 miles per hour. Roadway improvements include curb, gutter and sidewalk on both sides of the street. On-street parking is permitted. Curb, gutter, sidewalk, and parking improvements will be made to Telegraph Street between Stewart Street and Plaza Street with development of the project.

Proctor Street is a two-lane roadway with one through lane in each direction east of Plaza Street and a one-way eastbound roadway between Plaza Street and Carson Street. The speed limit is 25 miles per hour. Roadway improvements include curb, gutter and sidewalk on both sides of the street. On-street parking is permitted on both sides of the street. Curb, gutter, sidewalk, and parking improvements will be made to Proctor Street between Stewart Street and Plaza Street with development of the project

The Carson Street/Robinson Street intersection is a signalized four-leg intersection with permissive left turn phasing at all approaches. The north and south approaches each contain one left turn lane, one through lane, and one shared through-right turn lane. The east and west approaches each contain one left turn lane and one shared through-right turn lane. Pedestrian crosswalks exist at all approaches.

The Carson Street/Musser Street intersection is a signalized four-leg intersection with permissive left turn phasing at all approaches. The north and south approaches each contain one left turn lane, one through lane, and one shared through-right turn lane. The east and west approaches each contain one left turn lane and one shared through-right turn lane. Pedestrian crosswalks exist at all approaches.

The Stewart Street/Robinson Street intersection is a signalized four-leg intersection with permissive left turn phasing at all approaches. The north and south approaches each contain one shared left turn-through lane and one shared through-right turn lane. The east and west approaches each contain one left turn lane and one shared through-right turn lane. Pedestrian crosswalks exist at all approaches.

The Stewart Street/Musser Street intersection is a signalized four-leg intersection with permissive left turn phasing at all approaches. The north and south approaches each contain one shared left turn-through lane and one shared through-right turn lane. The east and west approaches each contain one left turn lane and one shared through-right turn lane. Pedestrian crosswalks exist at all approaches.

The Stewart Street/Telegraph Street intersection is an unsignalized four-leg intersection with stop sign control at the east and west approaches. The north and south approaches each contain one shared left turn-through lane and one shared through-right turn lane. The east and west approaches each contain one shared left turn-through-right turn lane. A pedestrian crosswalk exists at the south approach.

The Stewart Street/Proctor Street intersection is an unsignalized four-leg intersection with stop sign control at the east and west approaches. The north and south approaches each contain one shared left turn-through lane and one shared through-right turn lane. The east and west approaches each contain one shared left turn-through-right turn lane. A pedestrian crosswalk exists at the north approach.

The Telegraph Street/Parking Garage Driveway intersection does not currently exist by will be constructed as an unsignalized three-leg intersection with stop sign control at the south approach with development of the project. The east approach is anticipated to contain one left turn lane and one through lane. The west approach is anticipated to contain one shared through-right turn lane. The south approach will contain one shared left turn-right turn lane.

The Proctor Street/Parking Garage Driveway intersection does not currently exist by will be constructed an unsignalized three-leg intersection with stop sign control at the north approach with development of the project. The west approach is anticipated to contain one shared left turn-through lane. The east approach is anticipated to contain one shared through-right turn lane. The north approach will contain one shared left turn-right turn lane.

TRIP GENERATION

In order to assess the magnitude of traffic impacts of the proposed development on the key intersections, trip generation rates and peak hours had to be determined. Trip generation rates were obtained from the Ninth Edition of *ITE Trip Generation* (2012) for Land Uses 310: Hotel, 710: General Office Building, and 820: Shopping Center.

The proposed Capitol Mall development will include the construction of a four-story parking garage with ground floor retail (Building A), a ten-story hotel building with parking garage (Building B), an eight-story office building with ground floor retail (Building C), an eight-story parking garage with ground floor retail (Building D), and a six-story office building with ground floor retail (Building E). The project will include a total of 421,200 square feet of office floor area, 61,200 square feet of retail floor area, 150 hotel rooms, and 1,600 parking garage spaces.

The trip generation for the proposed development was calculated for the peak hours occurring between 7:00 and 9:00 AM and 4:00 and 6:00 PM, which correspond to the peak hours of adjacent street traffic. The trip generation worksheet is included in the Appendix. Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour volumes generated by the project.

TABLE 1 TRIP GENERATION							
		AM PEAK HOUR			PM PEAK HOUR		
LAND USE	ADT	IN	OUT	TOTAL	IN	OUT	TOTAL
Building A Shopping Center (10,800 S.F.)	461	6	4	10	19	21	40
Building B Hotel (150 Rooms)	1,226	47	33	80	46	44	90
Building C Office (235,600 S.F.) Shopping Center (14,400 S.F.) Total	2,599 615 3,214	324 9 333	44 5 49	368 14 382	60 25 85	291 28 319	351 53 404
Building D Shopping Center (21,600 S.F.)	922	13	8	21	38	42	80
Building E Office (185,600 S.F.) Shopping Center (14,400 S.F.) Total	2,047 615 2,662	255 9 264	35 5 40	290 14 304	47 25 72	230 28 258	277 53 330
Total Trips	8,485	663	134	797	260	684	944

TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of the new traffic to the key intersection was based on existing peak hour traffic patterns and the locations of attractions and productions in the area. The anticipated directions of approach are shown in Figure 2. The project trips were subsequently assigned to the key intersections based on these directions of approach. Figure 3 shows the AM and PM peak hour trip assignment at the key intersections.

PROJECTED TRAFFIC VOLUMES

Figure 4 shows the 2020 base turning movement volumes at the key intersections for the AM and PM peak hours. Figure 5 shows the 2035 base turning movement volumes at the key intersections for the AM and PM peak hours. The 2020 and 2035 base turning movement volumes at the signalized intersections were obtained directly from Carson City's traffic forecasting model and assume that the Carson Street narrowing project is in place. The 2020 and 2035 base turning movement volumes at the unsignalized intersections were estimated based on existing traffic counts at the intersections and model volumes on Stewart Street. Figure 6 shows the 2020 base plus project turning movement volumes at the key intersections for the AM and PM peak hours. Figure 7 shows the 2035 base plus project turning movement volumes at the key intersections for the AM and PM peak hours. The base plus project turning movement volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the base turning movement volumes.

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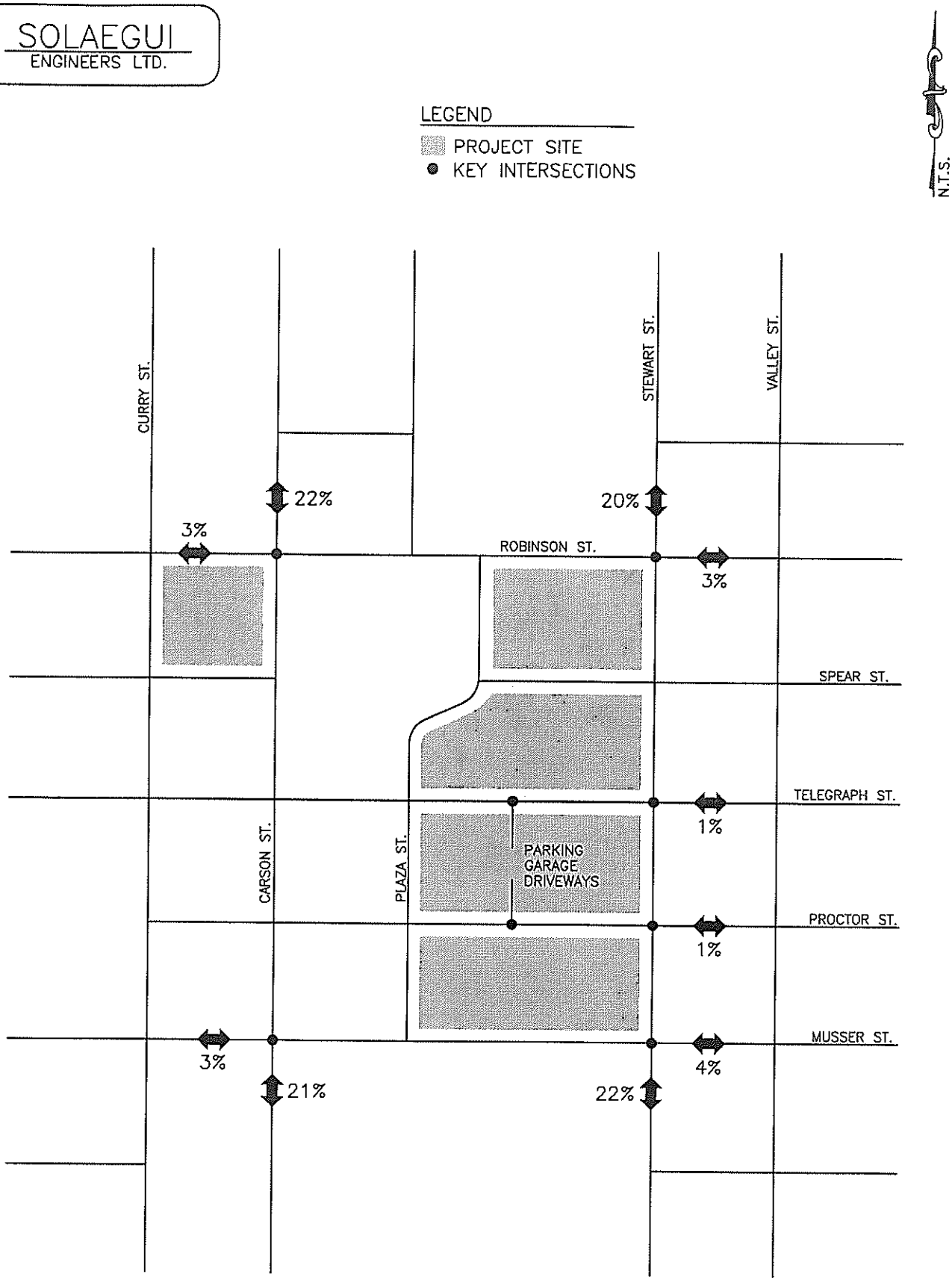

CAPITOL MALL
TRIP DISTRIBUTION
FIGURE 2

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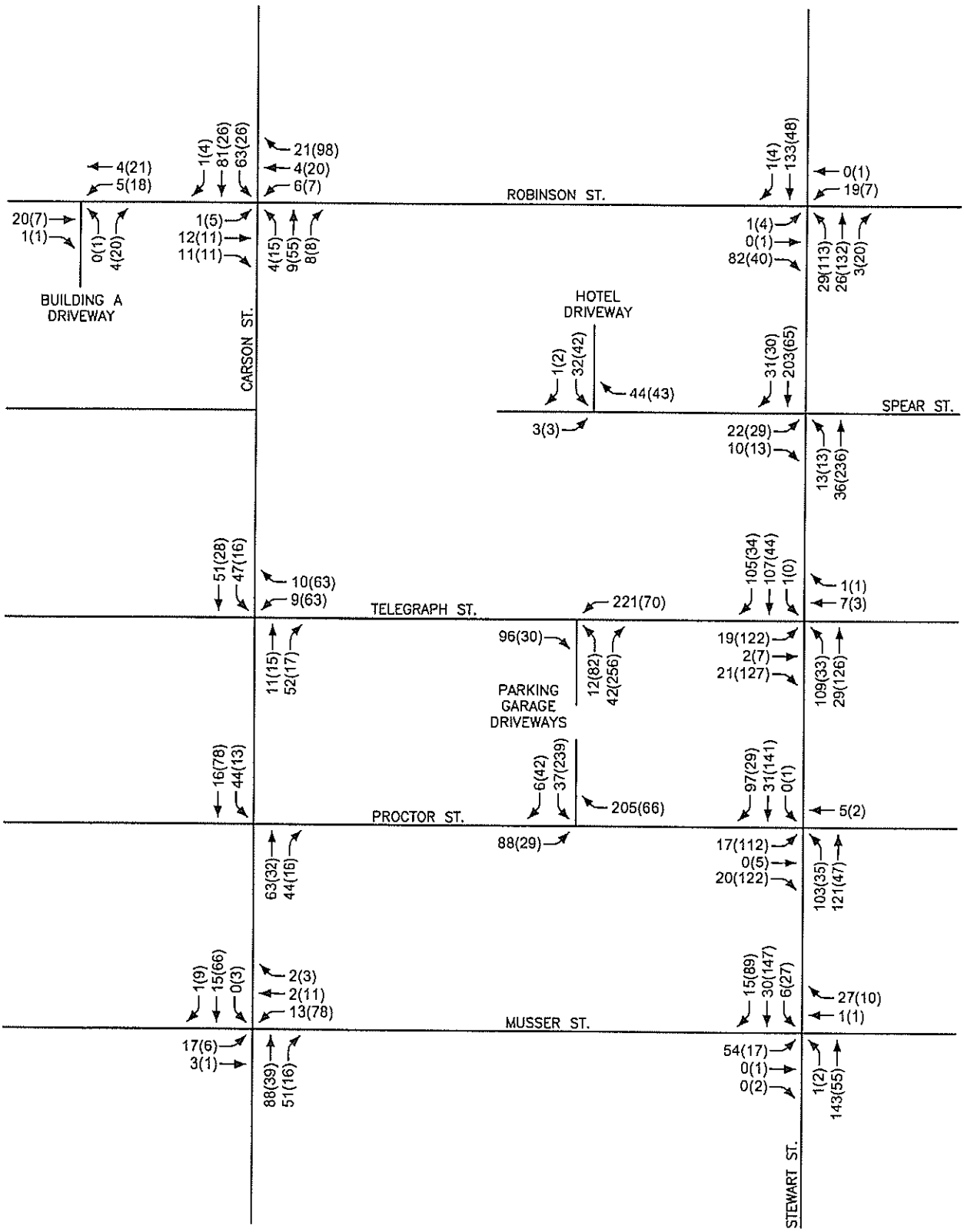

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TRIP ASSIGNMENT
FIGURE 3

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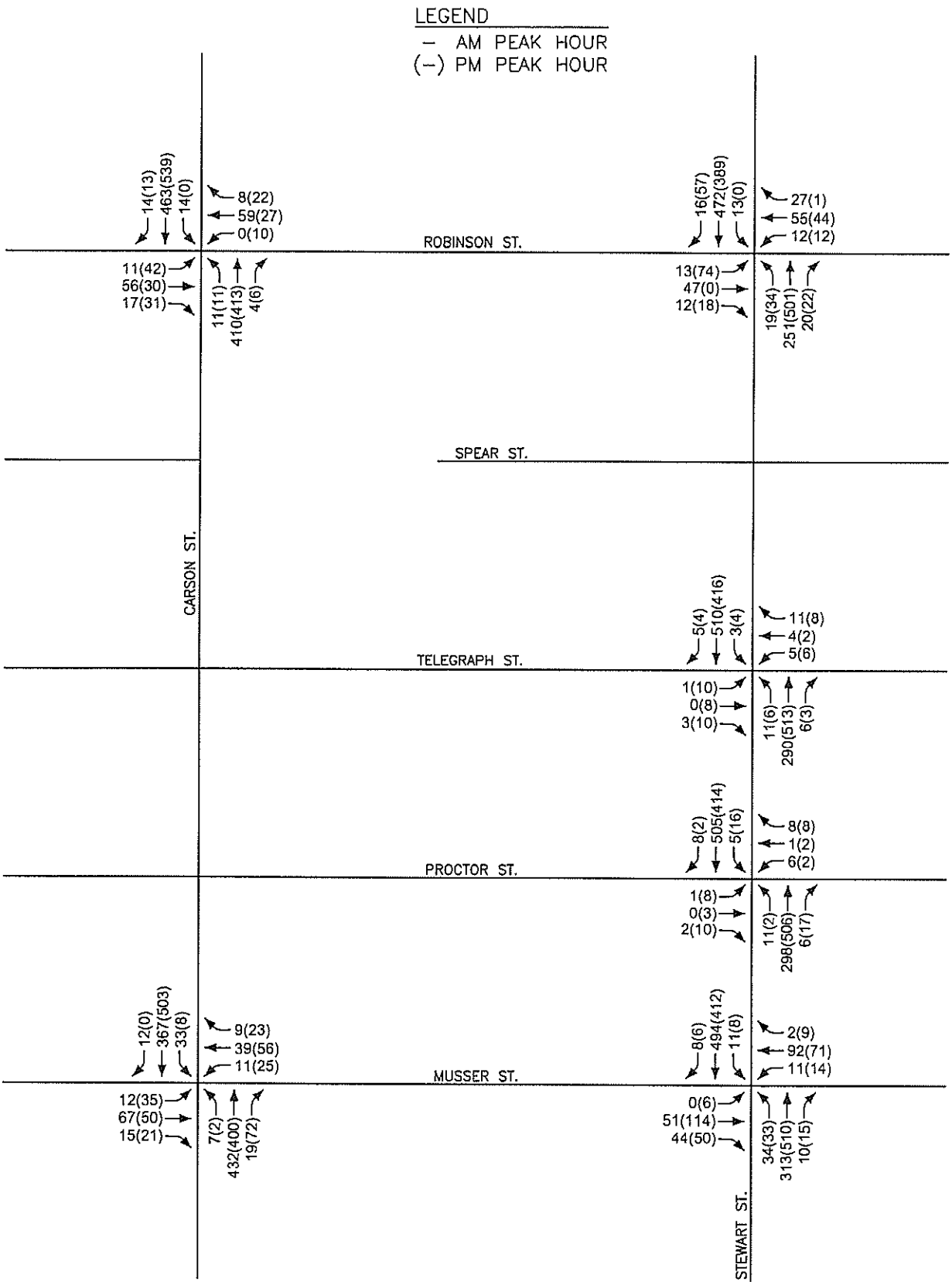

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2020 BASE TURNING MOVEMENT VOLUMES

FIGURE 4

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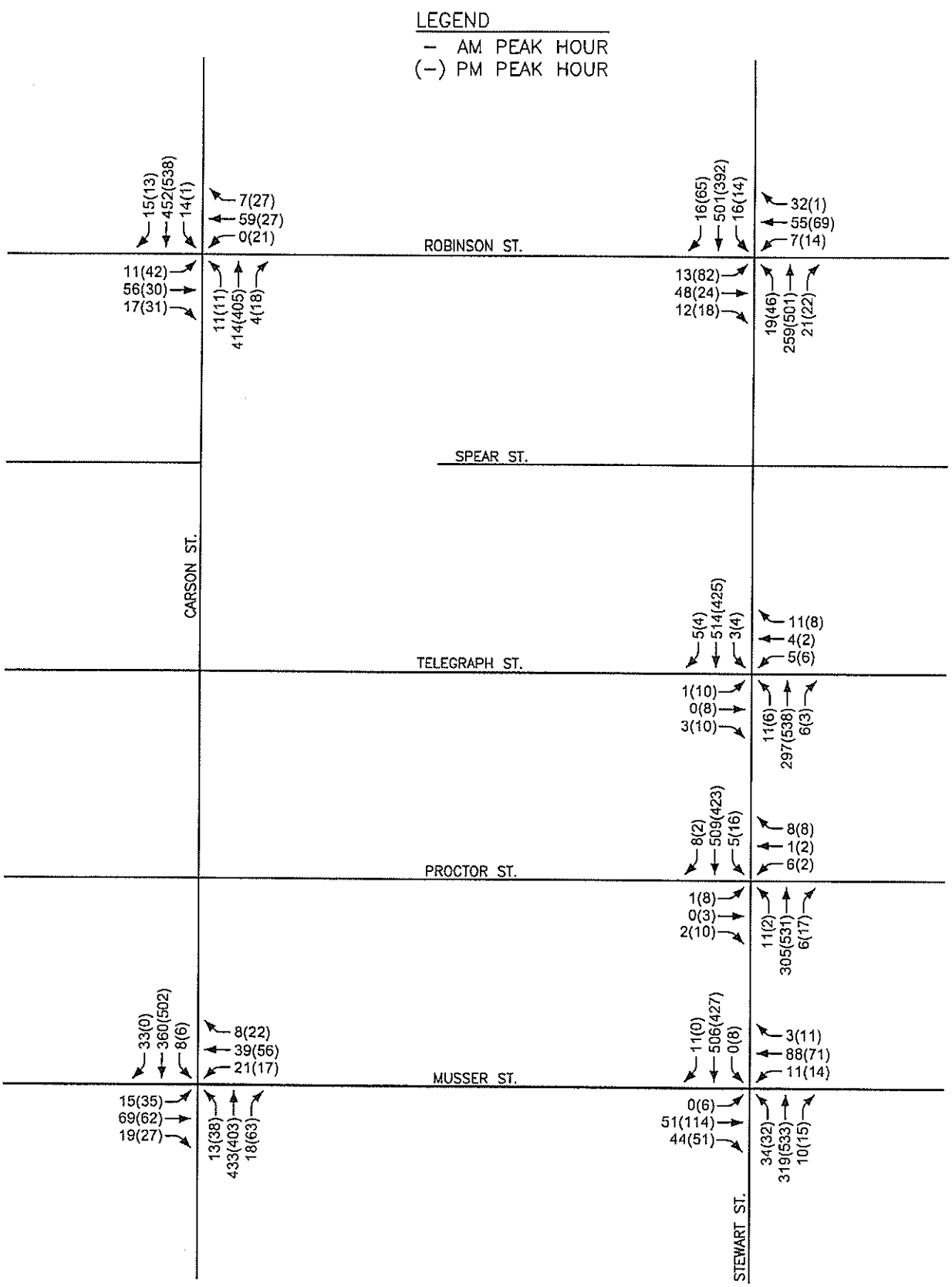

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2035 BASE TURNING MOVEMENT VOLUMES

FIGURE 5

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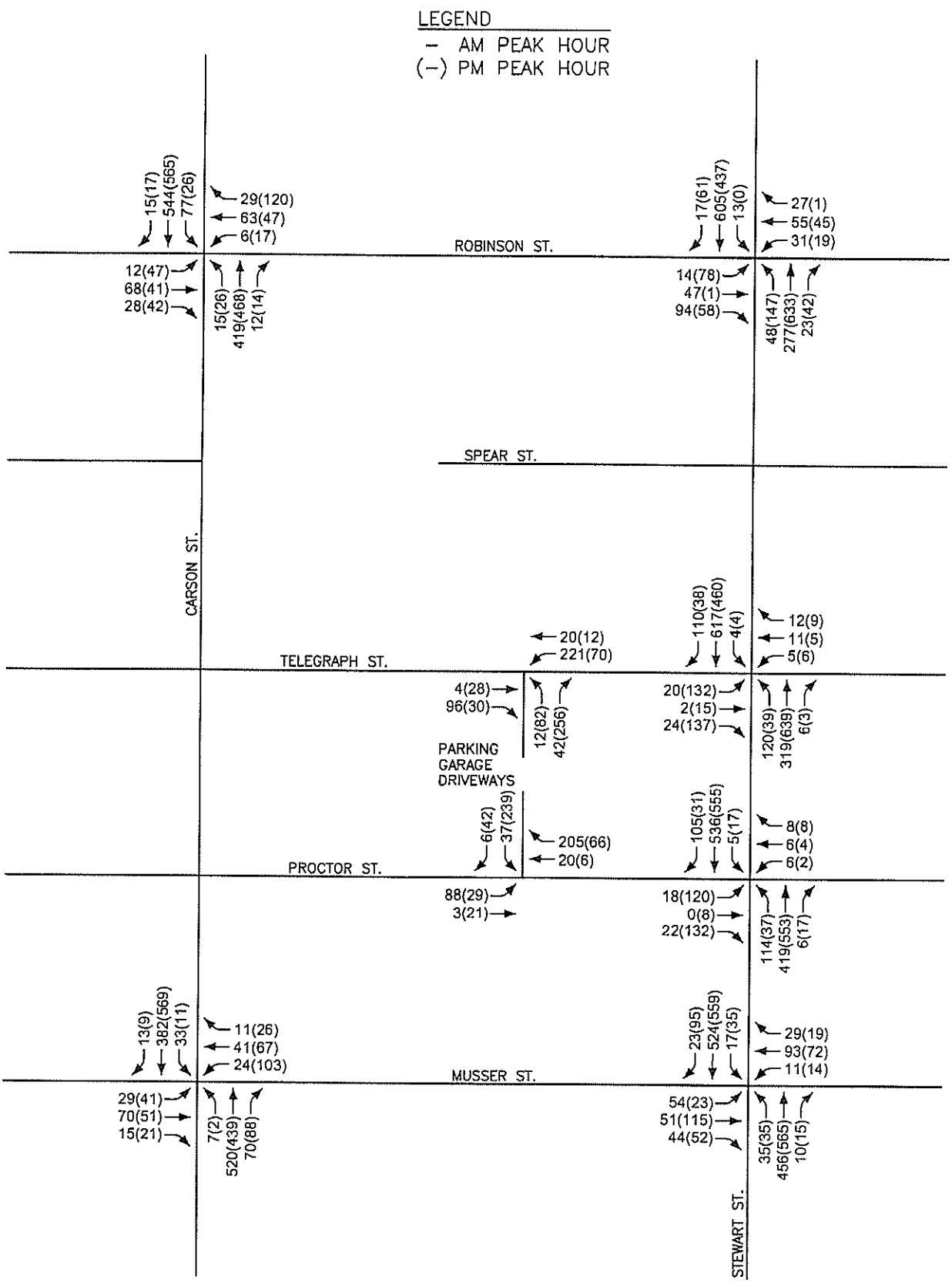

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2020 BASE + PROJECT TURNING MOVEMENT VOLUMES

FIGURE 6

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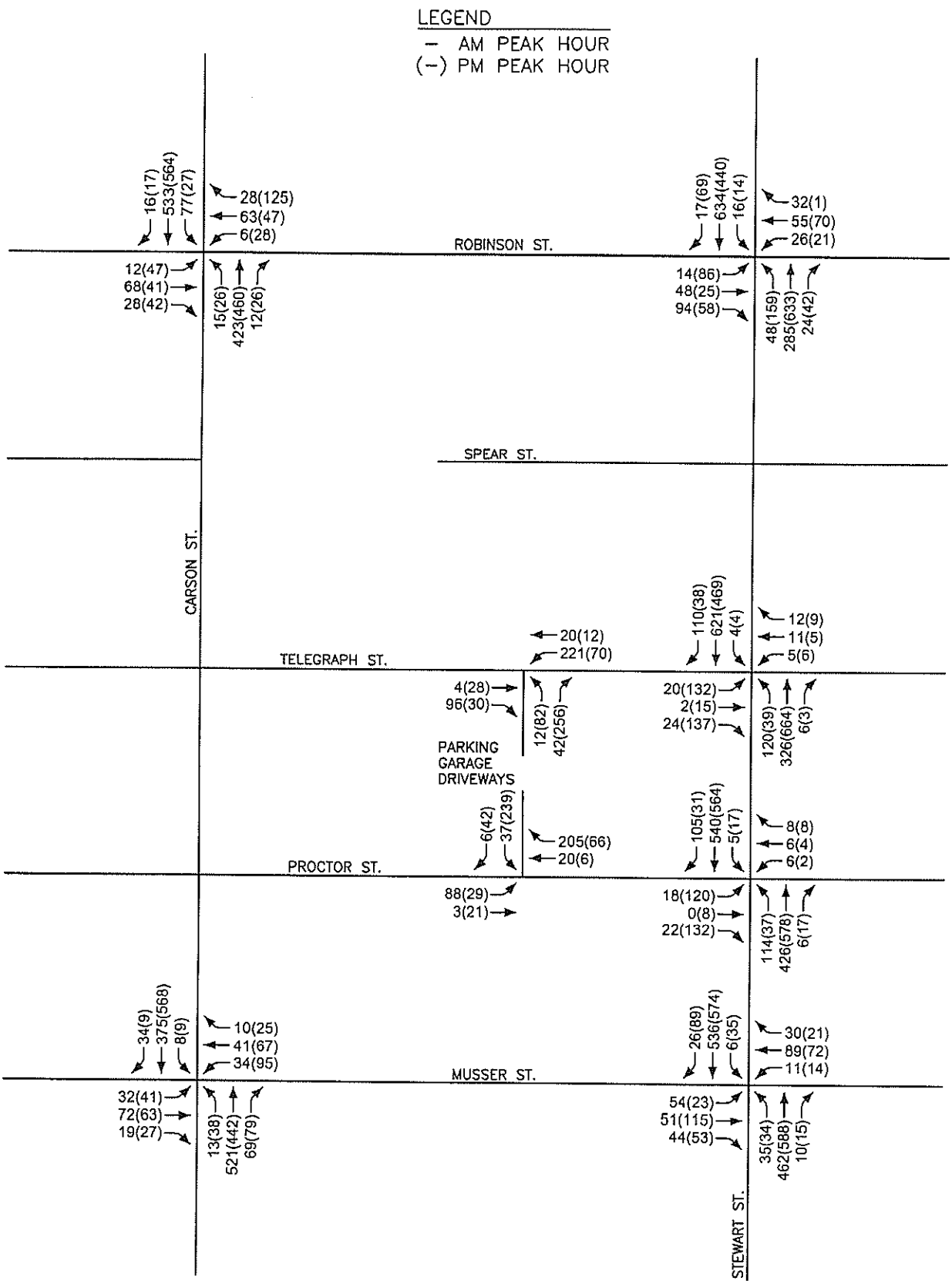


COPITAL MALL

2035 BASE + PROJECT TURNING MOVEMENT VOLUMES

FIGURE 7

INTERSECTION CAPACITY ANALYSIS

The key intersections were analyzed for capacity based on procedures presented in the *Highway Capacity Manual* (2010), prepared by the Transportation Research Board, for unsignalized and signalized intersections. The latest computer version of the Highway Capacity Software, prepared by the McTrans Center, University of Florida, was used to analyze the intersections.

The result of capacity analysis is a level of service (LOS) rating for each signalized intersection and unsignalized intersection minor movement. Level of service is a qualitative measure of traffic operating conditions where a letter grade "A" through "F", corresponding to progressively worsening traffic operation, is assigned to the intersection or minor movement.

The *Highway Capacity Manual* defines level of service for stop controlled intersections in terms of computed or measured control delay for each minor movement. Level of service is not defined for the intersection as a whole. The level of service criteria for unsignalized intersections is shown in Table 2.

TABLE 2
LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	DELAY RANGE (SEC/VEH)
A	≤10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Level of service for signalized intersections is stated in terms of the average control delay per vehicle for a peak 15 minute analysis period. The level of service criteria for signalized intersections is shown in Table 3.

TABLE 3
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Table 4 shows a summary of the level of service and delay results at the key intersections for the 2020 base, 2020 base plus project, 2035 base, and 2035 base plus project scenarios. The capacity analysis worksheets are included in the Appendix.

TABLE 4
INTERSECTION LEVEL OF SERVICE AND DELAY RESULTS

	2020 BASE		2020 BASE + PROJECT		2035 BASE		2034 BASE + PROJECT	
INTERSECTION	AM	PM	AM	PM	AM	PM	AM	PM
Carson/Robinson	B11.7	B12.4	B12.8	B13.6	B11.7	B12.5	B12.7	B13.7
Carson/Musser	B11.5	B12.5	B13.1	B13.8	B11.6	B12.5	B13.1	B13.8
Stewart/Robinson	A9.9	A9.9	B10.8	B11.7	A9.9	B10.4	B10.9	B12.3
Stewart/Musser	B10.1	B10.6	B10.7	B11.1	B10.0	B10.7	B10.7	B11.2
Stewart/Telegraph								
NB Left-Thru	A8.4	A8.2	A9.6	A8.5	A8.4	A8.2	A9.0	A8.5
SB Left-Thru	A7.9	A8.3	A7.8	A8.7	A7.9	A8.4	A7.8	A8.7
WB Left-Thru-Right	B11.9	B13.2	C20.8	C19.2	B11.9	B13.4	C18.8	C19.7
EB Left-Thru-Right	B10.8	B14.5	C20.7	E42.1	B10.7	B14.8	C18.6	E44.8
Stewart/Proctor								
NB Left-Thru	A8.5	A8.2	A9.3	A8.9	A8.5	A8.2	A9.2	A8.9
SB Left-Thru	A7.8	A8.3	A8.0	A8.4	A7.8	A8.4	A8.0	A8.5
WB Left-Thru-Right	B11.5	B11.8	C20.3	C16.7	B11.5	B12.0	C20.3	C17.2
EB Left-Thru-Right	B11.6	B13.1	C18.1	E46.2	B11.6	B13.4	C17.9	E49.0
Telegraph/Parking Garage Dwy.								
WB Left-Thru	N/A	N/A	A7.9	A7.4	N/A	N/A	A7.9	A7.4
NB Left-Right	N/A	N/A	A10.0	B11.1	N/A	N/A	A10.0	B11.1
Proctor/Parking Garage Dwy.								
EB Left-Thru	N/A	N/A	A7.9	A7.4	N/A	N/A	A7.9	A7.4
SB Left-Right	N/A	N/A	B10.9	B11.2	N/A	N/A	B10.9	B11.2

Carson Street/Robinson Street Intersection

The Carson Street/Robinson Street intersection was analyzed for capacity as signalized four-leg intersection for all scenarios. For the 2020 base turning movement volumes the intersection is anticipated to operate at LOS B with a delay of 11.7 seconds per vehicle during the AM peak hour and 12.4 seconds per vehicle during the PM peak hour. For the 2020 base plus project turning movement volumes the intersection will continue to operate at LOS B with delays increasing to 12.8 seconds per vehicle during the AM peak hour and 13.6 seconds per vehicle during the PM peak hour. For the 2035 base turning movement volumes the intersection is anticipated to operate at LOS B with a delay of 11.7 seconds per vehicle during the AM peak hour and 12.5 seconds per vehicle during the PM peak hour.

For the 2035 base plus project turning movement volumes the intersection will continue to operate at LOS B with delays increasing to 12.7 seconds per vehicle during the AM peak hour and 13.7 seconds per vehicle during the PM peak hour. For all scenarios the intersection was analyzed with one left turn lane and one shared through-right turn lane at each approach. The intersection was analyzed with these approach lanes due to the planned downtown complete streets project. The Carson Street/Robinson Street intersection meets Carson City level of service D standards.

Left turn storage requirements were subsequently reviewed at the Carson Street/Robinson Street intersection based on the Poisson Method for signalized intersections with a 95th percentile confidence level. 90 feet of storage is required at the north approach, 65 feet is required at the west approach, and less than 50 feet is required at the south and east approaches based on the 2020 and 2035 base plus project volumes. The east approach contains 50 feet of storage length, the west approach contains 65 feet of storage length, and the north and south approaches each contain more than 100 feet of storage length which will serve future traffic demands.

Carson Street/Musser Street Intersection

The Carson Street/Musser Street intersection was analyzed for capacity as signalized four-leg intersection for all scenarios. For the 2020 base turning movement volumes the intersection is anticipated to operate at LOS B with a delay of 11.5 seconds per vehicle during the AM peak hour and 12.5 seconds per vehicle during the PM peak hour. For the 2020 base plus project turning movement volumes the intersection will continue to operate at LOS B with delays increasing to 13.1 seconds per vehicle during the AM peak hour and 13.8 seconds per vehicle during the PM peak hour. For the 2035 base turning movement volumes the intersection is anticipated to operate at LOS B with a delay of 11.6 seconds per vehicle during the AM peak hour and 12.5 seconds per vehicle during the PM peak hour. For the 2035 base plus project turning movement volumes the intersection will continue to operate at LOS B with delays increasing to 13.1 seconds per vehicle during the AM peak hour and 13.8 seconds per vehicle during the PM peak hour. For all scenarios the intersection was analyzed with one exclusive left turn lane and one shared through-right turn lane at each approach. The intersection was analyzed with these approach lanes due to the planned downtown complete streets project. The Carson Street/Musser Street intersection meets Carson City level of service D standards.

Left turn storage requirements were subsequently reviewed at the Carson Street/Musser Street intersection based on the Poisson Method for signalized intersections with a 95th percentile confidence level. 100 feet of storage is required at the east approach, 60 feet is required at both the south and west approaches, and 25 feet is required at the north approach based on the 2020 and 2035 base plus project volumes. The north and west approaches each contain approximately 60 feet of storage length and the south approach contains approximately 75 feet of storage length which will serve future traffic demands. The east approach contains only 65 feet of storage length which does not meet the 100 feet requirement. It is recommended that the left turn pocket at the east approach of the Carson Street/Musser Street intersection be improved to contain a minimum of 100 feet of storage length.

Stewart Street/Robinson Street Intersection

The Stewart Street/Robinson Street intersection was analyzed for capacity as signalized four-leg intersection for all scenarios. For the 2020 base turning movement volumes the intersection is anticipated to operate at LOS A with a delay of 9.9 seconds per vehicle during the AM and PM peak hours. For the 2020 base plus project turning movement volumes the intersection is anticipated to operate at LOS B with delays increasing to 10.8 seconds per vehicle during the AM peak hour and 11.7 seconds per vehicle during the PM peak hour. For the 2035 base turning movement volumes the intersection is anticipated to operate at LOS A with a delay of 9.9 seconds per vehicle during the AM peak hour and LOS B with a delay of 10.4 seconds per vehicle during the PM peak hour. For the 2035 base plus project turning movement volumes the intersection is anticipated to operate at LOS B with a delay of 10.9 seconds per vehicle during the AM peak hour and 12.3 seconds per vehicle during the PM peak hour. The intersection was analyzed with the existing approach lanes for all scenarios. The Stewart Street/Robinson Street intersection meets Carson City level of service D standards.

Left turn storage requirements were subsequently reviewed at the Stewart Street/Robinson Street intersection based on the Poisson Method for signalized intersections with a 95th percentile confidence level. 100 feet of storage is required at the west approach and 50 feet is required at the east approach based on the 2020 and 2035 base plus project volumes. The east approach contains approximately 75 feet of storage length which will serve future traffic demands. The west approach contains 65 feet of storage length which does not meet the 100 feet requirement.

It is recommended that the left turn pocket at the west approach of the Stewart Street/Robinson Street intersection be improved to contain a minimum of 100 feet of storage length.

Stewart Street/Musser Street Intersection

The Stewart Street/Musser Street intersection was analyzed for capacity as signalized four-leg intersection for all scenarios. For the 2020 base turning movement volumes the intersection is anticipated to operate at LOS B with a delay of 10.1seconds per vehicle during the AM peak hour and 10.6 seconds per vehicle during the PM peak hour. For the 2020 base plus project turning movement volumes the intersection will continue to operate at LOS B with delays increasing to 10.7 seconds per vehicle during the AM peak hour and 11.1 seconds per vehicle during the PM peak hour. For the 2035 base turning movement volumes the intersection is anticipated to operate at LOS B with a delay of 10.0 seconds per vehicle during the AM peak hour and 10.7 seconds per vehicle during the PM peak hour. For the 2035 base plus project turning movement volumes the intersection will continue to operate at LOS B with delays increasing to 10.7 seconds per vehicle during the AM peak hour and 11.2 seconds per vehicle during the PM peak hour. The intersection was analyzed with the existing approach lanes for all scenarios. The Stewart Street/Musser Street intersection meets Carson City level of service D standards.

Left turn storage requirements were subsequently reviewed at the Stewart Street/Musser Street intersection based on the Poisson Method for signalized intersections with a 95th percentile confidence level. Approximately 70 feet of storage is required at the west approach and approximately 30 feet is required at the east approach based on the 2020 and 2035 base plus project volumes. The east approach currently contains a center two-way left turn lane which will serve future traffic demands. The west approach contains approximately 50 feet of storage length which does not meet the 70 feet requirement.

It is recommended that the left turn pocket at the west approach of the Stewart Street/Musser Street intersection be improved to contain a minimum of 100 feet of storage length.

Stewart Street/Telegraph Street Intersection

The Stewart Street/Telegraph Street intersection was analyzed as an unsignalized four-leg intersection with stop sign control at the east and west approaches for all scenarios. For the 2020 base turning movement volumes the intersection minor movements are anticipated to operate at LOS B or better during the AM and PM peak hours. For the 2020 base plus project turning movement volumes the intersection minor movements operate at LOS C or better except for the eastbound movements which operate at LOS E during the PM peak hour. For the 2035 base turning movement volumes the intersection minor movements are anticipated to operate at LOS B or better during the AM and PM peak hours. For the 2035 base plus project turning movement volumes the intersection minor movements operate at LOS C or better except for the eastbound movements which operates at LOS E during the PM peak hour. The intersection was analyzed with the existing approach lanes for all scenarios. The Stewart Street/Telegraph Street intersection does not meet Carson City level of service D standards.

The Stewart Street/Telegraph Street intersection was subsequently analyzed for capacity with one exclusive left turn lane and one shared through-right turn lane at the west approach. For the 2035 base plus project PM peak hour volumes the eastbound left turn movement will continue to operate at LOS E and the shared through-right turn movement will operate at LOS B. Overall, the west approach will operate at LOS C.

It is recommended that that the west approach of the Stewart Street/Telegraph Street intersection be improved to include one exclusive left turn lane and one shared through-right turn lane. The left turn lane shall function as a center two-way left turn lane and extend west to the parking garage driveway.

Stewart Street/Proctor Street Intersection

The Stewart Street/Proctor Street intersection was analyzed as an unsignalized four-leg intersection with stop sign control at the east and west approaches for all scenarios. For the 2020 base turning movement volumes the intersection minor movements are anticipated to operate at LOS B or better during the AM and PM peak hours. For the 2020 base plus project turning movement volumes the intersection minor movements operate at LOS C or better except for the eastbound movements which operate at LOS E during the PM peak hour. For the 2035 base turning movement volumes the intersection minor movements are anticipated to operate at LOS B or better during the AM and PM peak hours. For the 2035 base plus project turning movement volumes the intersection minor movements operate at LOS C or better except for the eastbound movements which operates at LOS E during the PM peak hour. The intersection was analyzed with the existing approach lanes for all scenarios. The Stewart Street/Proctor Street intersection does not meet Carson City level of service D standards.

The Stewart Street/Proctor Street intersection was subsequently analyzed for capacity with one exclusive left turn lane and one shared through-right turn lane at the west approach. For the 2035 base plus project PM peak hour volumes the eastbound left turn movement will continue to operate at LOS E and the shared through-right turn movement will operate at LOS B. Overall, the west approach will operate at LOS D.

It is recommended that that the west approach of the Stewart Street/Proctor Street intersection be improved to include one exclusive left turn lane and one shared through-right turn lane. It is recommended that the left turn lane contain a minimum of 100 feet of storage length based on the unsignalized left turn storage calculation method of providing two minutes of storage.

Telegraph Street/Parking Garage Driveway Intersection

The Telegraph Street/Parking Garage Driveway intersection was analyzed as an unsignalized three-leg intersection with stop sign control at the south approach for the 2020 and 2035 base plus project scenarios. For the 2020 base plus project turning movement volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For the 2035 base plus project turning movement volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. The intersection was analyzed with single lanes at each approach for both scenarios. The Telegraph Street/Parking Garage Driveway intersection meets Carson City level of service D standards.

It is recommended that the Telegraph Street/Parking Garage Driveway intersection be designed to include one left turn lane and one through lane at the east approach, one shared through-right turn lane at the west approach, and one shared left turn-right turn lane at the south approach. The left turn lane shall function as a center two-way left turn lane and extend east to Stewart Street.

Proctor Street/Parking Garage Driveway Intersection

The Proctor Street/Parking Garage Driveway intersection was analyzed as an unsignalized three-leg intersection with stop sign control at the north approach for the 2020 and 2035 base plus project scenarios. For the 2020 base plus project turning movement volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. For the 2035 base plus project turning movement volumes the intersection minor movements operate at LOS B or better during the AM and PM peak hours. The intersection was analyzed with single lanes at each approach for both scenarios. The intersection meets Carson City level of service D standards. It is recommended that the Proctor Street/Parking Garage Driveway intersection be designed to include one shared left turn-through lane at the west approach, one shared through-right turn lane at the east approach, and one shared left turn-right turn lane at the north approach.

RECOMMENDATIONS

Traffic generated by the proposed Capitol Mall development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that the left turn pocket at the east approach of the Carson Street/Musser Street intersection be improved to contain a minimum of 100 feet of storage length.

It is recommended that the left turn pocket at the west approach of the Stewart Street/Robinson Street intersection be improved to contain a minimum of 100 feet of storage length.

It is recommended that that the west approach of the Stewart Street/Telegraph Street intersection be improved to include one exclusive left turn lane and one shared through-right turn lane. The left turn lane shall function as a center two-way left turn lane and extend west to the parking garage driveway.

It is recommended that that the west approach of the Stewart Street/Proctor Street intersection be improved to include one exclusive left turn lane with a minimum of 100 feet of storage length and one shared through-right turn lane.

It is recommended that the left turn pocket at the west approach of the Stewart Street/Musser Street intersection be improved to contain a minimum of 100 feet of storage length.

It is recommended that the Telegraph Street/Parking Garage Driveway intersection be designed to include one left turn lane and one through lane at the east approach, one shared through-right turn lane at the west approach, and one shared left turn-right turn lane at the south approach. The left turn lane shall function as a center two-way left turn lane and extend east to Stewart Street.

It is recommended that the Proctor Street/Parking Garage Driveway intersection be designed to include one shared left turn-through lane at the west approach, one shared through-right turn lane at the east approach, and one shared left turn-right turn lane at the north approach.

APPENDIX

Trip Generation Summary - Alternative 1
Average Weekday Driveway Volumes

Project: New Project
Alternative: Alternative 1

Open Date: 3/3/2015
Analysis 3/3/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour Adjacent Street Traffic			PM Peak Hour Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
820	CENTERSHOPPING 1	231	230	461	6	4	10	19	21	40
	10.8 Gross Leasable Area 1000 SF									
Unadjusted Driveway Volume		231	230	461	6	4	10	19	21	40
Unadjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Adjusted Driveway Volume		231	230	461	6	4	10	19	21	40
Adjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Adjusted Volume Added to Adjacent Streets		231	230	461	6	4	10	19	21	40

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Trip Generation Summary - Alternative 1
Average Weekday Driveway Volumes

Project: New Project
Alternative: Alternative 1

Open Date: 3/3/2015
Analysis 3/3/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour Adjacent Street Traffic			PM Peak Hour Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
310	HOTEL 1	613	613	1226	47	33	80	46	44	90
	150 Rooms									
Unadjusted Driveway Volume		613	613	1226	47	33	80	46	44	90
Unadjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Adjusted Driveway Volume		613	613	1226	47	33	80	46	44	90
Adjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Adjusted Volume Added to Adjacent Streets		613	613	1226	47	33	80	46	44	90

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Trip Generation Summary - Alternative 1
Average Weekday Driveway Volumes

Project: New Project
Alternative: Alternative 1

Open Date: 3/3/2015
Analysis 3/3/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour Adjacent Street Traffic			PM Peak Hour Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
710	OFFICEGENERAL 1	1300	1299	2599	324	44	368	60	291	351
	235.6 Gross Floor Area 1000 SF									
Unadjusted Driveway Volume		1300	1299	2599	324	44	368	60	291	351
Unadjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Adjusted Driveway Volume		1300	1299	2599	324	44	368	60	291	351
Adjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Adjusted Volume Added to Adjacent Streets		1300	1299	2599	324	44	368	60	291	351

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Trip Generation Summary - Alternative 1
Average Weekday Driveway Volumes

Project: New Project
Alternative: Alternative 1

Open Date: 3/3/2015
Analysis 3/3/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour Adjacent Street Traffic			PM Peak Hour Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
820	CENTERSHOPPING 1	308	307	615	9	5	14	25	28	53
	14.4 Gross Leasable Area 1000 SF									
Unadjusted Driveway Volume		308	307	615	9	5	14	25	28	53
Unadjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Adjusted Driveway Volume		308	307	615	9	5	14	25	28	53
Adjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Adjusted Volume Added to Adjacent Streets		308	307	615	9	5	14	25	28	53

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Trip Generation Summary - Alternative 1
Average Weekday Driveway Volumes

Project: New Project
Alternative: Alternative 1

Open Date: 3/3/2015
Analysis 3/3/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour Adjacent Street Traffic			PM Peak Hour Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
820	CENTERSHOPPING 1	461	461	922	13	8	21	38	42	80
	21.6 Gross Leasable Area 1000 SF									
Unadjusted Driveway Volume		461	461	922	13	8	21	38	42	80
Unadjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Adjusted Driveway Volume		461	461	922	13	8	21	38	42	80
Adjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Adjusted Volume Added to Adjacent Streets		461	461	922	13	8	21	38	42	80

Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

Trip Generation Summary - Alternative 1
Average Weekday Driveway Volumes

Project: New Project
Alternative: Alternative 1

Open Date: 3/3/2015
Analysis 3/3/2015

ITE	Land Use	Average Daily Trips			AM Peak Hour Adjacent Street Traffic			PM Peak Hour Adjacent Street Traffic		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
710	OFFICEGENERAL 1	1024	1023	2047	255	35	290	47	230	277
	185.6 Gross Floor Area 1000 SF									
Unadjusted Driveway Volume		1024	1023	2047	255	35	290	47	230	277
Unadjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Internal Capture Trips		0	0	0	0	0	0	0	0	0
Adjusted Driveway Volume		1024	1023	2047	255	35	290	47	230	277
Adjusted Pass-By Trips		0	0	0	0	0	0	0	0	0
Adjusted Volume Added to Adjacent Streets		1024	1023	2047	255	35	290	47	230	277

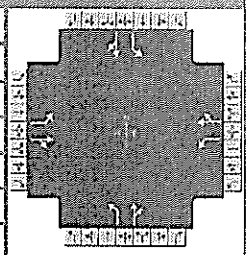
Total AM Peak Hour Internal Capture = 0 Percent

Total PM Peak Hour Internal Capture = 0 Percent

Source: Institute of Transportation Engineers, Trip Generation Manual 9th Edition, 2012

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	CaRo20ax.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	11	56	17	0	59	8	11	410	4	14	463	14

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

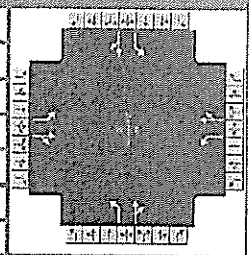
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (*Y*+*Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		4.2		3.8				
Green Extension Time (g_e), s		0.2		0.2		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	12	77		0	71		12	436		15	502	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1306	1780		1317	1819		907	1859		964	1852	
Queue Service Time (g_s), s	0.4	2.0		0.0	1.8		0.5	9.2		0.6	11.2	
Cycle Queue Clearance Time (g_c), s	2.2	2.0		0.0	1.8		11.7	9.2		9.8	11.2	
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	476	548		111	560		443	1001		494	997	
Volume-to-Capacity Ratio (*X*)	0.024	0.140		0.000	0.126		0.026	0.435		0.030	0.503	
Available Capacity (c_a), veh/h	476	548		111	560		443	1001		494	997	
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	0.8		0.0	0.7		0.1	3.3		0.1	4.1	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.0	16.3		0.0	16.2		13.2	9.0		12.0	9.5	
Incremental Delay (d_2), s/veh	0.0	0.0		0.0	0.0		0.1	1.4		0.1	1.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.0	16.3		0.0	16.2		13.3	10.4		12.1	11.3	
Level of Service (LOS)	B	B			B		B	B		B	B	
Approach Delay, s/veh / LOS	16.4	B		16.2	B		10.5	B		11.3	B	
Intersection Delay, s/veh / LOS	11.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.6	A	0.6	A	1.2	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	CaRo20px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	42	30	31	10	27	22	11	413	6	0	539	13

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0	1	2	3	4		
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0	5	6	7	8		

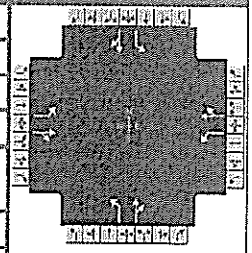
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.0		4.2				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	44	64		11	52		12	441		0	581	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1328	1691		1313	1710		844	1858		963	1854	
Queue Service Time (g_s), s	1.6	1.8		0.4	1.4		0.6	9.3		0.0	13.7	
Cycle Queue Clearance Time (g_c), s	3.0	1.8		2.2	1.4		14.3	9.3		0.0	13.7	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	491	520		479	526		387	1000		111	999	
Volume-to-Capacity Ratio (*X*)	0.090	0.123		0.022	0.098		0.030	0.441		0.000	0.582	
Available Capacity (c_a), veh/h	491	520		479	526		387	1000		111	999	
Back of Queue (*Q*), veh/ln (50th percentile)	0.5	0.7		0.1	0.5		0.1	3.4		0.0	5.1	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.1	16.2		17.0	16.1		14.9	9.1		0.0	10.1	
Incremental Delay (d_2), s/veh	0.0	0.0		0.0	0.0		0.1	1.4		0.0	2.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.2	16.2		17.0	16.1		15.0	10.5		0.0	12.6	
Level of Service (LOS)	B	B		B	B		B	B			B	
Approach Delay, s/veh / LOS	16.6	B		16.2	B		10.6	B		12.6	B	
Intersection Delay, s/veh / LOS	12.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.2	A	1.4	A

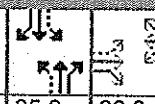
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	CaRo20aw.xus				
Project Description					

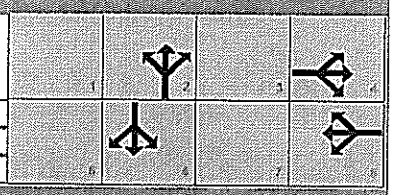


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	12	68	28	6	63	29	15	419	12	77	544	15

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	35.0	20.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	1.0	1.0	0.0	0.0	0.0	0.0	



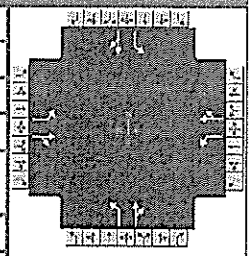
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.1		5.0				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	13	101		6	97		16	454		81	588	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1276	1760		1271	1753		838	1853		948	1853	
Queue Service Time (g_s), s	0.5	2.7		0.2	2.6		0.8	9.7		3.7	14.0	
Cycle Queue Clearance Time (g_c), s	3.1	2.7		3.0	2.6		14.8	9.7		13.4	14.0	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	452	542		448	539		382	998		479	998	
Volume-to-Capacity Ratio (*X*)	0.028	0.187		0.014	0.180		0.041	0.455		0.169	0.590	
Available Capacity (c_a), veh/h	452	542		448	539		382	998		479	998	
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	1.1		0.1	1.0		0.2	3.5		0.8	5.2	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.6	16.5		17.6	16.5		15.1	9.2		13.3	10.1	
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.2	1.5		0.8	2.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.6	16.6		17.6	16.5		15.4	10.7		14.0	12.7	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	16.7	B		16.6	B		10.8	B		12.9	B	
Intersection Delay, s/veh / LOS	12.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	1.3	A	1.6	A

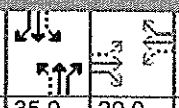
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	CaRo20pw.xus				
Project Description					

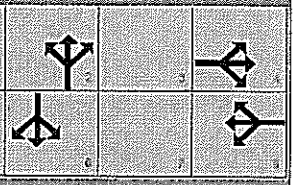


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	47	41	42	17	47	120	26	468	14	26	565	17

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



	EB			WB			NB			SB		
Green	35.0	20.0		0.0	0.0	0.0	0.0					
Yellow	4.0	4.0		0.0	0.0	0.0	0.0					
Red	1.0	1.0		0.0	0.0	0.0	0.0					



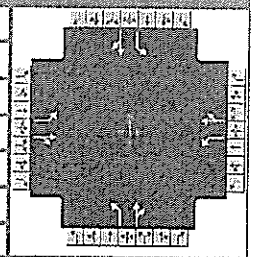
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		9.6		7.4				
Green Extension Time (g_e), s		0.6		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.01		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	49	87		18	176		27	507		27	613	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1191	1692		1287	1629		819	1852		903	1852	
Queue Service Time (g_s), s	2.2	2.5		0.7	5.4		1.5	11.3		1.3	14.8	
Cycle Queue Clearance Time (g_c), s	7.6	2.5		3.1	5.4		16.4	11.3		12.6	14.8	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	377	521		458	501		365	997		440	997	
Volume-to-Capacity Ratio (*X*)	0.131	0.168		0.039	0.351		0.075	0.509		0.062	0.614	
Available Capacity (c_a), veh/h	377	521		458	501		365	997		440	997	
Back of Queue (*Q*), veh/ln (50th percentile)	0.6	0.9		0.2	2.0		0.3	4.1		0.3	5.5	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	20.4	16.4		17.6	17.5		16.0	9.5		13.5	10.3	
Incremental Delay (d_2), s/veh	0.1	0.1		0.0	0.2		0.4	1.9		0.3	2.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	20.5	16.5		17.6	17.6		16.4	11.4		13.8	13.2	
Level of Service (LOS)	C	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	17.9	B		17.6	B		11.6	B		13.2	B	
Intersection Delay, s/veh / LOS	13.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	1.4	A	1.5	A

HCS 2010 Signalized Intersection Results Summary

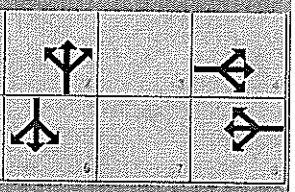
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	CaRo35ax.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	11	56	17	0	59	7	11	414	4	14	452	15

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



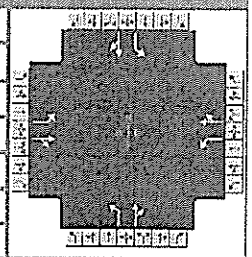
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.2		3.2		0.0		0.0
Queue Clearance Time (g_s), s		4.2		3.8				
Green Extension Time (g_e), s		0.2		0.2		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	12	77		0	69		12	440		15	492	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1307	1780		1317	1824		916	1859		960	1851	
Queue Service Time (g_s), s	0.4	2.0		0.0	1.8		0.5	9.3		0.6	10.8	
Cycle Queue Clearance Time (g_c), s	2.2	2.0		0.0	1.8		11.4	9.3		9.9	10.8	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	477	548		111	561		451	1001		490	997	
Volume-to-Capacity Ratio (*X*)	0.024	0.140		0.000	0.124		0.026	0.439		0.030	0.493	
Available Capacity (c_a), veh/h	477	548		111	561		451	1001		490	997	
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	0.8		0.0	0.7		0.1	3.4		0.1	4.0	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.0	16.3		0.0	16.2		13.0	9.1		12.1	9.4	
Incremental Delay (d_2), s/veh	0.0	0.0		0.0	0.0		0.1	1.4		0.1	1.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.0	16.3		0.0	16.2		13.1	10.5		12.2	11.2	
Level of Service (LOS)	B	B			B		B	B		B	B	
Approach Delay, s/veh / LOS	16.4	B		16.2	B		10.5	B		11.2	B	
Intersection Delay, s/veh / LOS	11.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.6	A	0.6	A	1.2	A	1.3	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	CaRo35px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	42	30	31	21	27	27	11	405	18	1	538	13

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

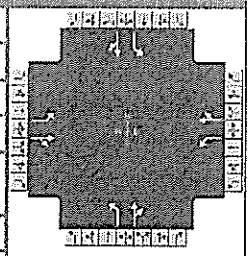
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		5.2		4.6				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	44	64		22	57		12	445		1	580	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1322	1691		1313	1694		844	1848		955	1854	
Queue Service Time (g_s), s	1.6	1.8		0.8	1.6		0.6	9.5		0.0	13.7	
Cycle Queue Clearance Time (g_c), s	3.2	1.8		2.6	1.6		14.3	9.5		9.6	13.7	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	486	520		479	521		388	995		485	999	
Volume-to-Capacity Ratio (*X*)	0.091	0.123		0.046	0.109		0.030	0.448		0.002	0.581	
Available Capacity (c_a), veh/h	486	520		479	521		388	995		485	999	
Back of Queue (*Q*), veh/ln (50th percentile)	0.5	0.7		0.2	0.6		0.1	3.5		0.0	5.1	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.3	16.2		17.1	16.1		14.9	9.1		12.0	10.1	
Incremental Delay (d_2), s/veh	0.0	0.0		0.0	0.0		0.1	1.5		0.0	2.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.3	16.2		17.1	16.2		15.0	10.6		12.0	12.5	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	16.7	B		16.4	B		10.7	B		12.5	B	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.2	A	1.4	A

HCS 2010 Signalized Intersection Results Summary

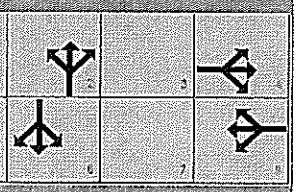
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	CaRo35aw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	12	68	28	6	63	28	15	423	12	77	533	16

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



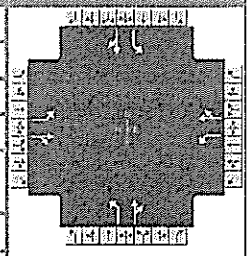
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.1		5.0				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	13	101		6	96		16	458		81	578	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1277	1760		1271	1755		846	1853		944	1852	
Queue Service Time (g_s), s	0.5	2.7		0.2	2.6		0.8	9.8		3.7	13.6	
Cycle Queue Clearance Time (g_c), s	3.1	2.7		3.0	2.6		14.4	9.8		13.6	13.6	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	453	542		448	540		389	998		476	997	
Volume-to-Capacity Ratio (*X*)	0.028	0.187		0.014	0.177		0.041	0.459		0.170	0.579	
Available Capacity (c_a), veh/h	453	542		448	540		389	998		476	997	
Back of Queue (Q), veh/ln (50th percentile)	0.1	1.1		0.1	1.0		0.2	3.6		0.8	5.1	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.6	16.5		17.6	16.5		14.9	9.2		13.4	10.1	
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.2	1.5		0.8	2.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.6	16.6		17.6	16.5		15.1	10.7		14.1	12.5	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	16.7	B		16.6	B		10.9	B		12.7	B	
Intersection Delay, s/veh / LOS	12.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	1.3	A	1.6	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Robinson	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	CaRo35pw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	47	41	42	28	47	125	26	460	26	27	564	17

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

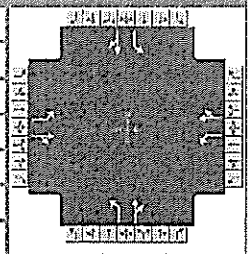
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		9.8		7.6				
Green Extension Time (g_e), s		0.6		0.7		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.01		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	49	87		29	181		27	512		28	612	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1185	1692		1287	1627		820	1844		899	1852	
Queue Service Time (g_s), s	2.2	2.5		1.1	5.6		1.5	11.5		1.4	14.8	
Cycle Queue Clearance Time (g_c), s	7.8	2.5		3.6	5.6		16.3	11.5		12.9	14.8	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	373	521		458	501		366	993		436	997	
Volume-to-Capacity Ratio (*X*)	0.133	0.168		0.064	0.362		0.075	0.515		0.065	0.613	
Available Capacity (c_a), veh/h	373	521		458	501		366	993		436	997	
Back of Queue (*Q*), veh/ln (50th percentile)	0.6	0.9		0.3	2.0		0.3	4.2		0.3	5.5	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	20.6	16.4		17.7	17.5		16.0	9.6		13.7	10.3	
Incremental Delay (d_2), s/veh	0.1	0.1		0.0	0.2		0.4	1.9		0.3	2.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	20.6	16.5		17.7	17.7		16.4	11.5		14.0	13.1	
Level of Service (LOS)	C	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	18.0	B		17.7	B		11.7	B		13.2	B	
Intersection Delay, s/veh / LOS	13.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	1.4	A	1.5	A

HCS 2010 Signalized Intersection Results Summary

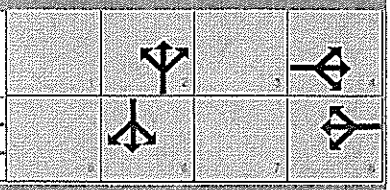
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	CaMu20ax.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	12	67	15	11	39	9	7	432	19	33	367	12

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



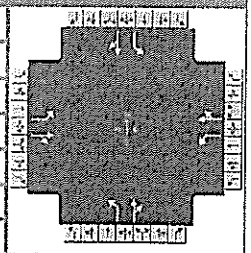
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		4.3		4.7				
Green Extension Time (g_e), s		0.3		0.2		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	13	86		12	51		7	475		35	399	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1329	1797		1288	1796		997	1848		930	1852	
Queue Service Time (g_s), s	0.4	2.3		0.4	1.3		0.3	10.4		1.6	8.2	
Cycle Queue Clearance Time (g_c), s	1.7	2.3		2.7	1.3		8.5	10.4		11.9	8.2	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	493	553		462	553		521	995		463	997	
Volume-to-Capacity Ratio (*X*)	0.026	0.156		0.025	0.091		0.014	0.477		0.075	0.400	
Available Capacity (c_a), veh/h	493	553		462	553		521	995		463	997	
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	0.9		0.1	0.5		0.1	3.8		0.3	3.0	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	16.7	16.4		17.3	16.0		11.3	9.3		13.0	8.8	
Incremental Delay (d_2), s/veh	0.0	0.0		0.0	0.0		0.0	1.6		0.3	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	16.7	16.4		17.4	16.1		11.4	11.0		13.3	10.0	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	16.4		B	16.3		B	11.0		B	10.3		B
Intersection Delay, s/veh / LOS	11.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.3	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

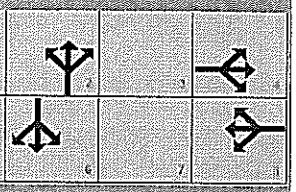
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	CaMu20px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	50	21	25	56	23	2	400	72	8	503	0

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



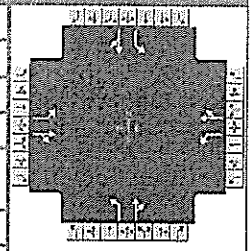
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (*Y*+*Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (*gs*), s		5.6		5.0				
Green Extension Time (*ge*), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	37	75		26	83		2	497		8	0	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1292	1759		1301	1760		885	1810		911	0	
Queue Service Time (*gs*), s	1.4	2.0		1.0	2.2		0.1	11.4		0.4	0.0	
Cycle Queue Clearance Time (*gc*), s	3.6	2.0		3.0	2.2		12.0	11.4		11.7	0.0	
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54		
Capacity (*c*), veh/h	464	541		471	542		425	975		442		
Volume-to-Capacity Ratio (*X*)	0.079	0.138		0.056	0.154		0.005	0.510		0.019	0.000	
Available Capacity (*ca*), veh/h	464	541		471	542		425	975		442		
Back of Queue (*Q*), veh/ln (50th percentile)	0.4	0.8		0.3	0.9		0.0	4.1		0.1	0.0	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (*d1*), s/veh	17.7	16.3		17.3	16.3		13.5	9.5		13.3		
Incremental Delay (*d2*), s/veh	0.0	0.0		0.0	0.0		0.0	1.9		0.1	0.0	
Initial Queue Delay (*d3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.7	16.3		17.4	16.4		13.6	11.4		13.4		
Level of Service (LOS)	B	B		B	B		B	B		B		
Approach Delay, s/veh / LOS	16.8	B		16.6	B		11.5	B		11.7	B	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	1.3	A	1.4	A

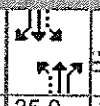
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	CaMu20aw.xus				
Project Description					

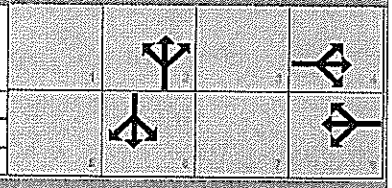


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	70	15	24	41	11	7	520	70	33	382	13

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Green	35.0	20.0	0.0	0.0	0.0	0.0		
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
Red	1.0	1.0	0.0	0.0	0.0	0.0		



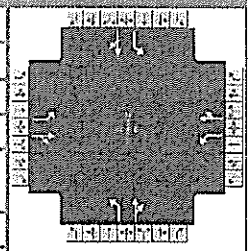
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		4.5		5.3				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	31	89		25	55		7	621		35	416	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1324	1799		1284	1787		981	1821		813	1851	
Queue Service Time (g_s), s	1.1	2.4		1.0	1.4		0.3	15.5		2.0	8.7	
Cycle Queue Clearance Time (g_c), s	2.5	2.4		3.3	1.4		9.0	15.5		17.6	8.7	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	489	554		459	550		508	981		354	997	
Volume-to-Capacity Ratio (*X*)	0.062	0.162		0.055	0.100		0.015	0.633		0.098	0.417	
Available Capacity (c_a), veh/h	489	554		459	550		508	981		354	997	
Back of Queue (*Q*), veh/ln (50th percentile)	0.3	0.9		0.3	0.6		0.1	5.8		0.4	3.2	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.0	16.4		17.6	16.1		11.6	10.5		16.7	8.9	
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.0		0.1	3.1		0.6	1.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.0	16.4		17.6	16.1		11.7	13.6		17.2	10.2	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	16.6	B		16.6	B		13.6	B		10.8	B	
Intersection Delay, s/veh / LOS	13.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.5	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	CaMu20pw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	41	51	21	103	67	26	2	439	88	11	569	9

Signal Information					EB		WB				NB			SB		
Cycle, s	65.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	35.0	20.0	0.0	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0						

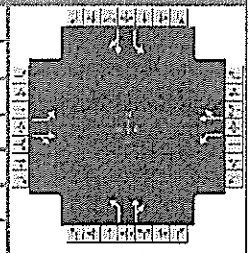
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (*Y*+*Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		6.3		8.3				
Green Extension Time (g_e), s		0.6		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	43	76		108	98		2	555		12	608	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1275	1760		1300	1764		823	1805		864	1857	
Queue Service Time (g_s), s	1.7	2.0		4.3	2.6		0.1	13.3		0.6	14.6	
Cycle Queue Clearance Time (g_c), s	4.3	2.0		6.3	2.6		14.7	13.3		13.9	14.6	
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	451	542		470	543		369	972		399	1000	
Volume-to-Capacity Ratio (*X*)	0.096	0.140		0.231	0.180		0.006	0.571		0.029	0.608	
Available Capacity (c_a), veh/h	451	542		470	543		369	972		399	1000	
Back of Queue (Q), veh/ln (50th percentile)	0.5	0.8		1.2	1.0		0.0	4.8		0.1	5.5	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	18.1	16.3		18.6	16.5		15.4	10.0		14.6	10.3	
Incremental Delay (d_2), s/veh	0.0	0.0		0.1	0.1		0.0	2.4		0.1	2.8	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	18.1	16.3		18.6	16.6		15.4	12.4		14.8	13.0	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	17.0		B	17.7		B	12.4		B	13.1		B
Intersection Delay, s/veh / LOS	13.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	1.4	A	1.5	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	CaMu35ax.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	15	69	19	21	39	8	13	433	18	8	360	33

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

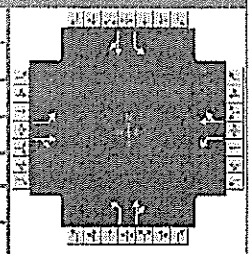
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (Y+R_c), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		4.5		5.3				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	16	93		22	49		14	475		8	414	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1330	1786		1281	1802		983	1849		930	1833	
Queue Service Time (g_s), s	0.6	2.5		0.8	1.3		0.5	10.4		0.4	8.7	
Cycle Queue Clearance Time (g_c), s	1.8	2.5		3.3	1.3		9.3	10.4		10.7	8.7	
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	494	550		456	554		508	995		463	987	
Volume-to-Capacity Ratio (*X*)	0.032	0.169		0.048	0.089		0.027	0.477		0.018	0.419	
Available Capacity (c_a), veh/h	494	550		456	554		508	995		463	987	
Back of Queue (*Q*), veh/ln (50th percentile)	0.2	1.0		0.2	0.5		0.1	3.8		0.1	3.1	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	16.7	16.4		17.6	16.0		11.7	9.3		12.6	8.9	
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.0		0.1	1.6		0.1	1.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	16.7	16.5		17.6	16.0		11.8	11.0		12.7	10.2	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	16.5	B		16.5	B		11.0	B		10.3	B	
Intersection Delay, s/veh / LOS	11.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.3	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

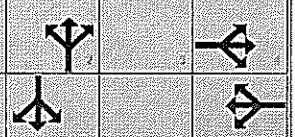
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	CaMu35px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	35	62	27	17	56	22	38	403	63	6	502	0

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



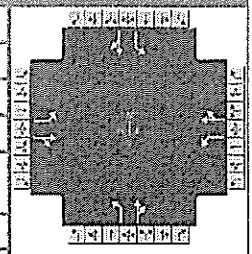
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.6		5.2				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	37	94		18	82		40	491		6	0	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1293	1756		1280	1764		885	1816		917	0	
Queue Service Time (g_s), s	1.4	2.5		0.7	2.2		2.0	11.1		0.3	0.0	
Cycle Queue Clearance Time (g_c), s	3.6	2.5		3.2	2.2		13.9	11.1		11.4	0.0	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54		
Capacity (*c*), veh/h	465	540		455	543		426	978		448		
Volume-to-Capacity Ratio (*X*)	0.079	0.173		0.039	0.151		0.094	0.502		0.014	0.000	
Available Capacity (c_a), veh/h	465	540		455	543		426	978		448		
Back of Queue (*Q*), veh/ln (50th percentile)	0.4	1.0		0.2	0.9		0.4	4.0		0.1	0.0	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.6	16.5		17.6	16.3		14.1	9.5		13.1		
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.0		0.4	1.8		0.1	0.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.7	16.5		17.6	16.4		14.6	11.3		13.1		
Level of Service (LOS)	B	B		B	B		B	B		B		
Approach Delay, s/veh / LOS	16.8	B		16.6	B		11.6	B		11.7	B	
Intersection Delay, s/veh / LOS	12.5						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	1.4	A	1.4	A

HCS 2010 Signalized Intersection Results Summary

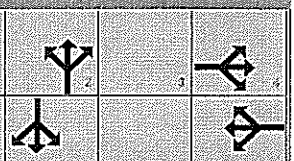
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	CaMu35aw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	32	72	19	34	41	10	13	521	69	8	375	34

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						



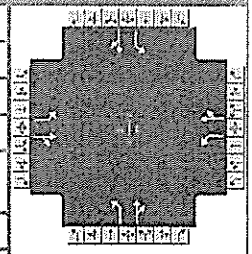
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		4.6		5.9				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	34	96		36	54		14	621		8	431	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1325	1788		1277	1793		968	1822		813	1834	
Queue Service Time (g_s), s	1.2	2.5		1.4	1.4		0.6	15.5		0.5	9.2	
Cycle Queue Clearance Time (g_c), s	2.6	2.5		3.9	1.4		9.8	15.5		16.0	9.2	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	490	550		454	552		495	981		355	987	
Volume-to-Capacity Ratio (*X*)	0.069	0.174		0.079	0.097		0.028	0.633		0.024	0.436	
Available Capacity (c_a), veh/h	490	550		454	552		495	981		355	987	
Back of Queue (*Q*), veh/ln (50th percentile)	0.4	1.0		0.4	0.5		0.1	5.8		0.1	3.3	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	17.0	16.5		17.9	16.1		12.0	10.5		16.1	9.0	
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.0		0.1	3.1		0.1	1.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	17.0	16.5		17.9	16.1		12.1	13.6		16.2	10.4	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	16.6	B		16.8	B		13.6	B		10.6	B	
Intersection Delay, s/veh / LOS	13.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.5	A	1.2	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Carson & Musser	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	CaMu35pw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	41	63	27	95	67	25	38	442	79	9	568	9

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

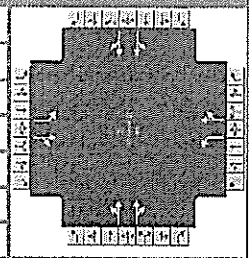
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		6.0		6.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		6.3		8.6				
Green Extension Time (g_e), s		0.6		0.6		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	43	95		100	97		40	548		9	607	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1276	1758		1279	1767		823	1810		869	1857	
Queue Service Time (g_s), s	1.7	2.6		4.0	2.6		2.3	13.0		0.5	14.6	
Cycle Queue Clearance Time (g_c), s	4.3	2.6		6.6	2.6		16.9	13.0		13.5	14.6	
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54	0.54		0.54	0.54	
Capacity (*c*), veh/h	452	541		454	544		369	975		404	1000	
Volume-to-Capacity Ratio (*X*)	0.095	0.175		0.220	0.178		0.108	0.563		0.023	0.607	
Available Capacity (c_a), veh/h	452	541		454	544		369	975		404	1000	
Back of Queue (*Q*), veh/ln (50th percentile)	0.5	1.0		1.2	1.0		0.5	4.7		0.1	5.5	
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00	0.00		0.00	0.00	
Uniform Delay (d_1), s/veh	18.0	16.5		18.9	16.5		16.1	9.9		14.4	10.3	
Incremental Delay (d_2), s/veh	0.0	0.1		0.1	0.1		0.6	2.3		0.1	2.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	18.1	16.5		19.0	16.5		16.7	12.3		14.5	13.0	
Level of Service (LOS)	B	B		B	B		B	B		B	B	
Approach Delay, s/veh / LOS	17.0	B		17.8	B		12.6	B		13.1	B	
Intersection Delay, s/veh / LOS	13.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.3	B	2.3	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.8	A	1.5	A	1.5	A

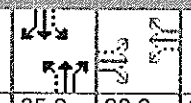
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	StRo20ax.xus				
Project Description					

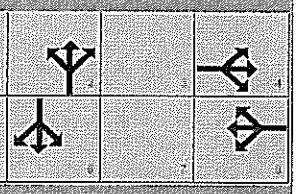


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	13	47	12	12	55	27	19	251	20	13	472	16

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



	EB		WB		NB	
Green	35.0	20.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



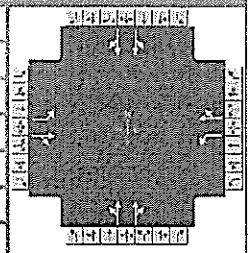
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		4.8		4.3				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	14	62		13	86		158		147	277		251
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1295	1793		1323	1752		1714		1650	1840		1674
Queue Service Time (g_s), s	0.5	1.6		0.4	2.3		0.0		2.9	0.0		5.3
Cycle Queue Clearance Time (g_c), s	2.8	1.6		2.1	2.3		2.8		2.9	5.2		5.3
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	463	552		485	539		986		888	1049		901
Volume-to-Capacity Ratio (*X*)	0.030	0.113		0.026	0.160		0.160		0.166	0.264		0.278
Available Capacity (c_a), veh/h	463	552		485	539		986		888	1049		901
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	0.6		0.1	0.9		1.0		0.9	1.9		1.7
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.4	16.1		16.9	16.4		7.6		7.6	8.1		8.1
Incremental Delay (d_2), s/veh	0.0	0.0		0.0	0.1		0.3		0.4	0.6		0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.4	16.2		16.9	16.4		7.9		8.0	8.7		8.9
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	16.4	B		16.5	B		8.0	A		8.8	A	
Intersection Delay, s/veh / LOS	9.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.6	A	0.7	A	0.7	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	StRo20px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	74	0	18	12	44	1	34	501	22	0	389	57

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

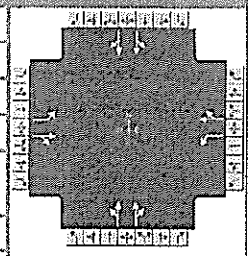
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		6.0		3.2				
Green Extension Time (g_e), s		0.2		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	78	19		13	47		301		285	0		231
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1341	1563		1375	1855		1736		1669	0		1775
Queue Service Time (g_s), s	2.8	0.6		0.4	1.2		0.0		6.2	0.0		4.5
Cycle Queue Clearance Time (g_c), s	4.0	0.6		1.0	1.2		5.8		6.2	0.0		4.5
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54			0.54
Capacity (*c*), veh/h	499	481		522	571		997		899			956
Volume-to-Capacity Ratio (*X*)	0.156	0.039		0.024	0.083		0.302		0.317	0.000		0.241
Available Capacity (c_a), veh/h	499	481		522	571		997		899			956
Back of Queue (*Q*), veh/ln (50th percentile)	0.8	0.2		0.1	0.5		2.1		2.0	0.0		1.5
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.4	15.8		16.1	16.0		8.3		8.3			8.0
Incremental Delay (d_2), s/veh	0.1	0.0		0.0	0.0		0.8		0.9	0.0		0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.5	15.8		16.1	16.0		9.0		9.3			8.6
Level of Service (LOS)	B	B		B	B		A		A			A
Approach Delay, s/veh / LOS	17.1	B		16.0	B		9.2	A		8.5	A	
Intersection Delay, s/veh / LOS	9.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.6	A	0.6	A	1.0	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	StRo20aw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	14	47	94	31	55	27	48	277	23	13	605	17

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

	EB		WB		NB		SB		NB		SB	
	L	T	L	T	L	T	L	T	L	T	L	T
Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

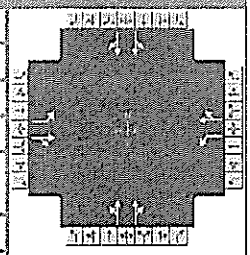
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		6.4		7.8				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	15	148		33	86		176		190	350		318
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1295	1652		1225	1752		1325		1655	1845		1677
Queue Service Time (g_s), s	0.5	4.4		1.4	2.3		0.3		3.9	0.0		7.0
Cycle Queue Clearance Time (g_c), s	2.9	4.4		5.8	2.3		7.3		3.9	7.0		7.0
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	463	508		404	539		784		891	1051		903
Volume-to-Capacity Ratio (*X*)	0.032	0.292		0.081	0.160		0.225		0.213	0.334		0.352
Available Capacity (c_a), veh/h	463	508		404	539		784		891	1051		903
Back of Queue (*Q*), veh/ln (50th percentile)	0.2	1.6		0.4	0.9		1.2		1.3	2.5		2.3
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.4	17.1		19.3	16.4		7.7		7.8	8.5		8.5
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.7		0.5	0.9		1.1
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.4	17.2		19.4	16.4		8.3		8.4	9.4		9.6
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	17.3	B		17.2	B		8.4	A		9.5	A	
Intersection Delay, s/veh / LOS	10.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.8	A	0.7	A	0.8	A	1.0	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	StRo20pw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	78	1	58	19	45	1	147	633	42	0	437	61

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

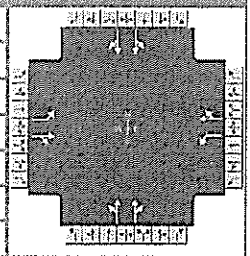
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (*Y*+*Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		6.2		4.6				
Green Extension Time (g_e), s		0.4		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	82	62		20	48		395		470	0		257
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1339	1567		1323	1855		1267		1665	0		1778
Queue Service Time (g_s), s	3.0	1.9		0.7	1.2		9.0		11.8	0.0		5.1
Cycle Queue Clearance Time (g_c), s	4.2	1.9		2.6	1.2		14.1		11.8	0.0		5.1
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54		0.54			0.54
Capacity (*c*), veh/h	498	482		480	571		759		897			957
Volume-to-Capacity Ratio (*X*)	0.165	0.129		0.042	0.085		0.520		0.525	0.000		0.269
Available Capacity (c_a), veh/h	498	482		480	571		759		897			957
Back of Queue (*Q*), veh/ln (50th percentile)	0.9	0.6		0.2	0.5		3.6		4.0	0.0		1.7
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.5	16.2		17.1	16.0		10.1		9.6			8.1
Incremental Delay (d_2), s/veh	0.1	0.0		0.0	0.0		2.5		2.2	0.0		0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.6	16.3		17.2	16.0		12.6		11.8			8.8
Level of Service (LOS)	B	B		B	B		B		B			A
Approach Delay, s/veh / LOS	17.0		B	16.4		B	12.2		B	8.8		A
Intersection Delay, s/veh / LOS	11.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.2	A	0.9	A

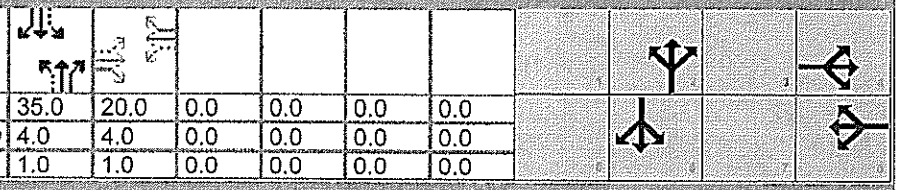
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	StRo35ax.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	13	48	12	7	55	32	19	259	21	16	501	16

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



	EB		WB		NB		SB	
Green	35.0	20.0	0.0	0.0	0.0	0.0		
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
Red	1.0	1.0	0.0	0.0	0.0	0.0		

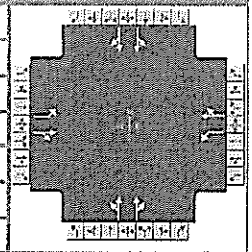
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		5.0		4.5				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	14	63		7	92		163		152	294		267
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1289	1794		1322	1740		1714		1649	1833		1675
Queue Service Time (g_s), s	0.5	1.6		0.3	2.5		0.0		3.0	0.0		5.7
Cycle Queue Clearance Time (g_c), s	3.0	1.6		1.9	2.5		2.9		3.0	5.6		5.7
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	458	552		484	535		985		888	1046		902
Volume-to-Capacity Ratio (*X*)	0.030	0.114		0.015	0.171		0.165		0.171	0.281		0.296
Available Capacity (c_a), veh/h	458	552		484	535		985		888	1046		902
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	0.6		0.1	1.0		1.0		1.0	2.0		1.9
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.5	16.1		16.8	16.4		7.6		7.6	8.2		8.2
Incremental Delay (d_2), s/veh	0.0	0.0		0.0	0.1		0.4		0.4	0.7		0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.6	16.2		16.8	16.5		7.9		8.0	8.9		9.1
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	16.4	B		16.5	B		8.0	A		9.0	A	
Intersection Delay, s/veh / LOS	9.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.6	A	0.7	A	0.7	A	1.0	A

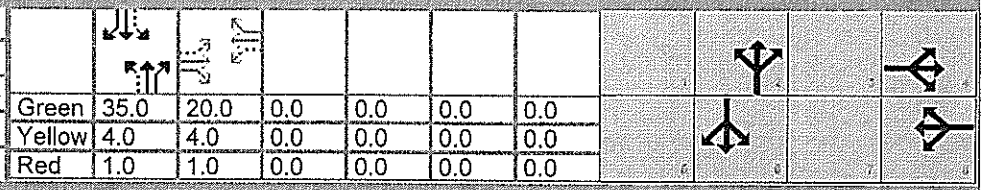
HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	StRo35px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	82	24	18	14	69	1	46	501	22	14	392	65

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



	EB			WB			NB			SB		
Green	35.0	20.0		0.0	0.0		0.0	0.0				
Yellow	4.0	4.0		0.0	0.0		0.0	0.0				
Red	1.0	1.0		0.0	0.0		0.0	0.0				

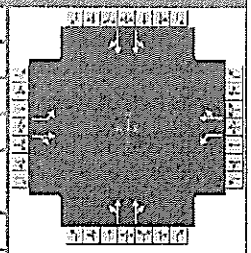
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (*Y*+*Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.2		3.9				
Green Extension Time (g_e), s		0.3		0.4		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	86	44		15	74		303		296	263		233
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1310	1721		1344	1858		1671		1670	1817		1605
Queue Service Time (g_s), s	3.3	1.2		0.5	1.9		0.0		6.5	0.0		5.1
Cycle Queue Clearance Time (g_c), s	5.2	1.2		1.7	1.9		5.8		6.5	4.9		5.1
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	476	530		500	572		964		899	1037		864
Volume-to-Capacity Ratio (*X*)	0.181	0.083		0.029	0.129		0.314		0.329	0.253		0.270
Available Capacity (c_a), veh/h	476	530		500	572		964		899	1037		864
Back of Queue (*Q*), veh/ln (50th percentile)	1.0	0.4		0.2	0.8		2.1		2.1	1.8		1.6
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.1	16.0		16.6	16.2		8.3		8.4	8.1		8.1
Incremental Delay (d_2), s/veh	0.1	0.0		0.0	0.0		0.9		1.0	0.6		0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.1	16.0		16.6	16.3		9.1		9.4	8.6		8.9
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	17.4	B		16.3	B		9.3	A		8.8	A	
Intersection Delay, s/veh / LOS	10.4						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.6	A	1.0	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	StRo35aw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	14	48	94	26	55	32	48	285	24	16	634	17

Signal Information					EB		WB		NB		SB	
Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	35.0	20.0	0.0	0.0	0.0	0.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0		

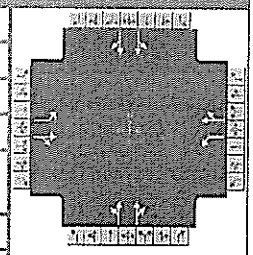
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.4		3.4		0.0		0.0
Queue Clearance Time (g_s), s		6.5		7.6				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	15	149		27	92		180		196	368		334
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1289	1653		1224	1740		1307		1654	1839		1678
Queue Service Time (g_s), s	0.5	4.5		1.1	2.5		0.4		4.0	0.0		7.5
Cycle Queue Clearance Time (g_c), s	3.0	4.5		5.6	2.5		7.8		4.0	7.4		7.5
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	458	509		403	535		775		891	1048		904
Volume-to-Capacity Ratio (*X*)	0.032	0.294		0.068	0.171		0.232		0.220	0.351		0.370
Available Capacity (c_a), veh/h	458	509		403	535		775		891	1048		904
Back of Queue (Q), veh/ln (50th percentile)	0.2	1.6		0.3	1.0		1.2		1.3	2.7		2.5
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.6	17.1		19.3	16.4		7.7		7.9	8.6		8.6
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.7		0.6	0.9		1.2
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.6	17.2		19.3	16.5		8.4		8.4	9.6		9.8
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	17.3	B		17.1	B		8.4	A		9.7	A	
Intersection Delay, s/veh / LOS	10.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.8	A	0.7	A	0.8	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Robinson	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	StRo35pw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	86	25	58	21	70	1	159	633	42	14	440	69

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0						
Yellow	4.0	4.0	0.0	0.0	0.0	0.0						
Red	1.0	1.0	0.0	0.0	0.0	0.0						

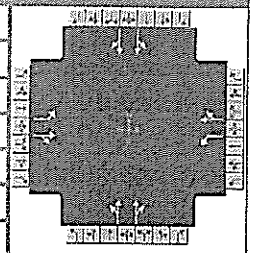
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (*Y*+*Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.4		5.4				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	91	87		22	75		395		483	292		259
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1308	1643		1294	1858		1187		1666	1814		1609
Queue Service Time (g_s), s	3.5	2.5		0.8	1.9		10.6		12.3	0.0		5.8
Cycle Queue Clearance Time (g_c), s	5.4	2.5		3.4	1.9		16.4		12.3	5.6		5.8
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	475	505		459	572		718		897	1035		866
Volume-to-Capacity Ratio (*X*)	0.190	0.173		0.048	0.131		0.549		0.539	0.282		0.299
Available Capacity (c_a), veh/h	475	505		459	572		718		897	1035		866
Back of Queue (*Q*), veh/ln (50th percentile)	1.0	0.9		0.2	0.8		3.9		4.1	2.0		1.8
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.2	16.5		17.7	16.2		10.8		9.8	8.2		8.3
Incremental Delay (d_2), s/veh	0.1	0.1		0.0	0.0		3.0		2.3	0.7		0.9
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.2	16.5		17.7	16.3		13.9		12.1	8.9		9.1
Level of Service (LOS)	B	B		B	B		B		B	A		A
Approach Delay, s/veh / LOS	17.4	B		16.6	B		12.9	B		9.0	A	
Intersection Delay, s/veh / LOS	12.3						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.8	A	0.6	A	1.2	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

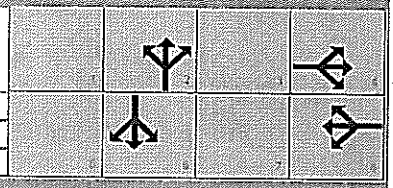
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	StMu20ax.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	0	51	44	11	92	2	34	313	10	11	494	8

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0	
Yellow	4.0	4.0	0.0	0.0	0.0	0.0	
Red	1.0	1.0	0.0	0.0	0.0	0.0	



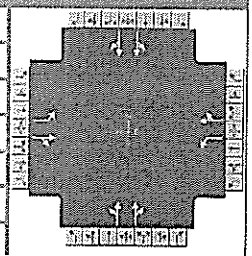
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		4.8		5.2				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	0	100		12	99		190		186	283		257
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1291	1711		1279	1855		1611		1677	1844		1685
Queue Service Time (g_s), s	0.0	2.8		0.4	2.5		0.0		3.7	0.0		5.4
Cycle Queue Clearance Time (g_c), s	0.0	2.8		3.2	2.5		3.4		3.7	5.4		5.4
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	111	526		449	571		933		903	1051		907
Volume-to-Capacity Ratio (*X*)	0.000	0.190		0.026	0.173		0.203		0.206	0.269		0.284
Available Capacity (c_a), veh/h	111	526		449	571		933		903	1051		907
Back of Queue (*Q*), veh/ln (50th percentile)	0.0	1.1		0.1	1.0		1.2		1.2	1.9		1.8
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	0.0	16.5		17.7	16.5		7.7		7.8	8.2		8.2
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.5		0.5	0.6		0.8
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	0.0	16.6		17.7	16.5		8.2		8.3	8.8		9.0
Level of Service (LOS)		B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	16.6	B		16.6	B		8.3	A		8.9	A	
Intersection Delay, s/veh / LOS	10.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	0.8	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

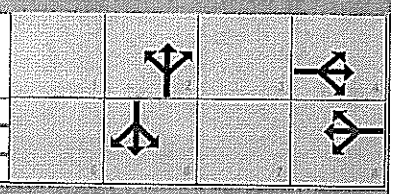
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2020 Base	Analysis Period	1> 7:00
File Name	StMu20px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	6	114	50	14	71	9	33	510	15	8	412	6

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



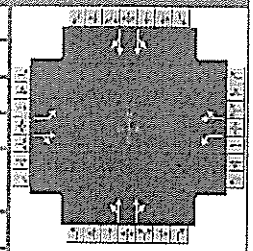
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, (*Y*+*Rc*), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		6.9		7.5				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	6	173		15	84		302		285	235		214
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1298	1760		1199	1823		1747		1677	1842		1686
Queue Service Time (g_s), s	0.2	4.9		0.6	2.2		0.0		6.2	0.0		4.4
Cycle Queue Clearance Time (g_c), s	2.4	4.9		5.5	2.2		5.8		6.2	4.3		4.4
Green Ratio (*g*/*C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	467	542		389	561		1003		903	1049		908
Volume-to-Capacity Ratio (*X*)	0.014	0.319		0.038	0.150		0.301		0.316	0.224		0.236
Available Capacity (c_a), veh/h	467	542		389	561		1003		903	1049		908
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	1.9		0.2	0.9		2.1		2.0	1.5		1.4
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.2	17.3		19.4	16.3		8.3		8.3	7.9		7.9
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.0		0.8		0.9	0.5		0.6
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.2	17.4		19.4	16.4		9.0		9.3	8.4		8.5
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	17.4	B		16.8	B		9.1	A		8.5	A	
Intersection Delay, s/veh / LOS	10.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.0	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	StMu20aw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	54	51	44	11	93	29	35	456	10	17	524	23

Signal Information												
Cycle, s	65.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	35.0	20.0	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

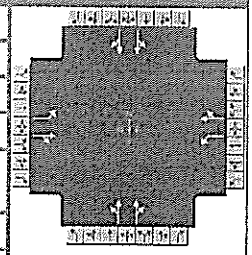
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.8		5.5				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	57	100		12	128		267		260	310		283
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1247	1711		1279	1782		1680		1682	1820		1668
Queue Service Time (g_s), s	2.3	2.8		0.4	3.5		0.0		5.5	0.0		6.1
Cycle Queue Clearance Time (g_c), s	5.8	2.8		3.2	3.5		5.0		5.5	6.0		6.1
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	428	526		449	548		968		906	1038		898
Volume-to-Capacity Ratio (*X*)	0.133	0.190		0.026	0.234		0.276		0.287	0.299		0.315
Available Capacity (c_a), veh/h	428	526		449	548		968		906	1038		898
Back of Queue (*Q*), veh/ln (50th percentile)	0.6	1.1		0.1	1.4		1.8		1.8	2.2		2.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	19.0	16.5		17.7	16.8		8.1		8.2	8.3		8.3
Incremental Delay (d_2), s/veh	0.1	0.1		0.0	0.1		0.7		0.8	0.7		0.9
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	19.0	16.6		17.7	16.9		8.8		9.0	9.0		9.3
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	17.5	B		16.9	B		8.9	A		9.1	A	
Intersection Delay, s/veh / LOS	10.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	0.9	A	1.0	A

HCS 2010 Signalized Intersection Results Summary

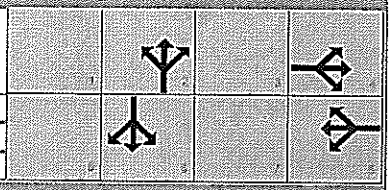
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2020 Base + Project	Analysis Period	1> 7:00
File Name	StMu20pw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	23	115	52	14	72	19	35	565	15	35	559	95

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



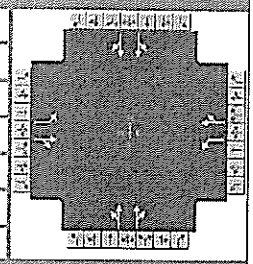
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.0		7.6				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	24	176		15	96		328		319	379		346
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1284	1758		1196	1791		1702		1679	1745		1606
Queue Service Time (g_s), s	0.9	5.0		0.6	2.5		0.0		7.0	0.0		8.2
Cycle Queue Clearance Time (g_c), s	3.5	5.0		5.6	2.5		6.4		7.0	7.7		8.2
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	456	541		387	551		978		904	1000		865
Volume-to-Capacity Ratio (*X*)	0.053	0.325		0.038	0.174		0.336		0.353	0.379		0.400
Available Capacity (c_a), veh/h	456	541		387	551		978		904	1000		865
Back of Queue (*Q*), veh/ln (50th percentile)	0.3	1.9		0.2	1.0		2.3		2.3	2.8		2.6
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.7	17.3		19.5	16.5		8.4		8.5	8.7		8.8
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.9		1.1	1.1		1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.7	17.4		19.5	16.5		9.3		9.6	9.8		10.2
Level of Service (LOS)	B	B		B	B		A		A	A		B
Approach Delay, s/veh / LOS	17.5	B		16.9	B		9.5	A		10.0	A	
Intersection Delay, s/veh / LOS	11.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.0	A	1.1	A

HCS 2010 Signalized Intersection Results Summary

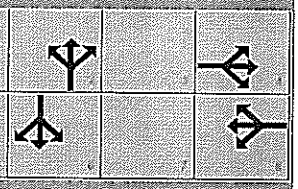
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	StMu35ax.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	0	51	44	11	88	3	34	319	10	0	506	11

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



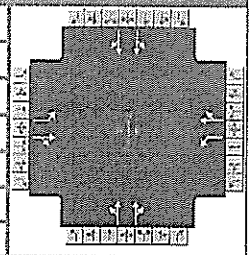
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		4.8		5.2				
Green Extension Time (g_e), s		0.3		0.3		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	0	100		12	96		193		189	0		271
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1295	1711		1279	1851		1610		1677	0		1848
Queue Service Time (g_s), s	0.0	2.8		0.4	2.5		0.0		3.8	0.0		5.2
Cycle Queue Clearance Time (g_c), s	0.0	2.8		3.2	2.5		3.5		3.8	0.0		5.2
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54			0.54
Capacity (*c*), veh/h	111	526		449	570		933		903			995
Volume-to-Capacity Ratio (*X*)	0.000	0.190		0.026	0.168		0.207		0.210	0.000		0.273
Available Capacity (c_a), veh/h	111	526		449	570		933		903			995
Back of Queue (*Q*), veh/ln (50th percentile)	0.0	1.1		0.1	1.0		1.2		1.2	0.0		1.8
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	0.0	16.5		17.7	16.4		7.7		7.8			8.1
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.5		0.5	0.0		0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	0.0	16.6		17.7	16.5		8.2		8.3			8.8
Level of Service (LOS)		B		B	B		A		A			A
Approach Delay, s/veh / LOS	16.6	B		16.6	B		8.3	A		8.8	A	
Intersection Delay, s/veh / LOS	10.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	0.8	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

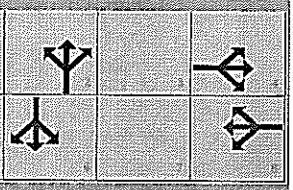
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2035 Base	Analysis Period	1> 7:00
File Name	StMu35px.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	6	114	51	14	71	11	32	533	15	8	427	0

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Green	35.0	20.0	0.0	0.0	0.0	0.0		
Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
Red	1.0	1.0	0.0	0.0	0.0	0.0		



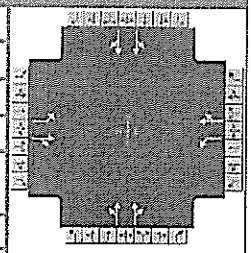
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		6.9		7.6				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	6	174		15	86		314		296	239		0
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1295	1759		1198	1816		1757		1678	1842		0
Queue Service Time (g_s), s	0.2	4.9		0.6	2.2		0.0		6.4	0.0		0.0
Cycle Queue Clearance Time (g_c), s	2.5	4.9		5.6	2.2		6.1		6.4	4.4		0.0
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		
Capacity (*c*), veh/h	465	541		389	559		1007		904	1049		
Volume-to-Capacity Ratio (*X*)	0.014	0.321		0.038	0.154		0.312		0.328	0.228		0.000
Available Capacity (c_a), veh/h	465	541		389	559		1007		904	1049		
Back of Queue (*Q*), veh/ln (50th percentile)	0.1	1.9		0.2	0.9		2.2		2.1	1.6		0.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.3	17.3		19.4	16.4		8.3		8.4	7.9		
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.0		0.8		1.0	0.5		0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.3	17.4		19.4	16.4		9.1		9.4	8.4		
Level of Service (LOS)	B	B		B	B		A		A	A		
Approach Delay, s/veh / LOS	17.4	B		16.8	B		9.3	A		8.5	A	
Intersection Delay, s/veh / LOS	10.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.0	A	0.9	A

HCS 2010 Signalized Intersection Results Summary

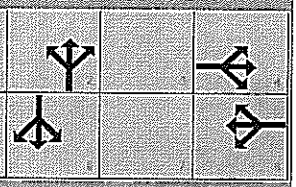
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	AM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	StMu35aw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	54	51	44	11	89	30	35	462	10	6	536	26

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



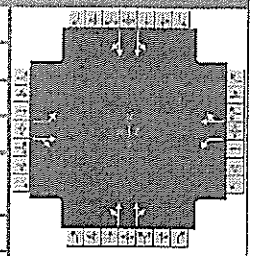
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.7		5.4				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	57	100		12	125		270		263	315		283
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1251	1711		1279	1777		1679		1682	1854		1664
Queue Service Time (g_s), s	2.3	2.8		0.4	3.4		0.0		5.6	0.0		6.1
Cycle Queue Clearance Time (g_c), s	5.7	2.8		3.2	3.4		5.1		5.6	6.1		6.1
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	430	526		449	547		967		906	1055		896
Volume-to-Capacity Ratio (*X*)	0.132	0.190		0.026	0.229		0.279		0.291	0.299		0.316
Available Capacity (c_a), veh/h	430	526		449	547		967		906	1055		896
Back of Queue (*Q*), veh/ln (50th percentile)	0.6	1.1		0.1	1.3		1.8		1.8	2.2		2.0
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	18.9	16.5		17.7	16.8		8.1		8.2	8.3		8.3
Incremental Delay (d_2), s/veh	0.1	0.1		0.0	0.1		0.7		0.8	0.7		0.9
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	18.9	16.6		17.7	16.8		8.8		9.0	9.1		9.3
Level of Service (LOS)	B	B		B	B		A		A	A		A
Approach Delay, s/veh / LOS	17.5	B		16.9	B		8.9	A		9.2	A	
Intersection Delay, s/veh / LOS	10.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.7	A	0.7	A	0.9	A	1.0	A

HCS 2010 Signalized Intersection Results Summary

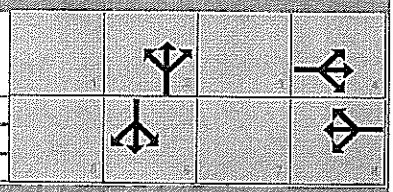
General Information				Intersection Information	
Agency	Solaegui Engineers			Duration, h	0.25
Analyst	MSH	Analysis Date	Mar 13, 2015	Area Type	Other
Jurisdiction	Carson City	Time Period	PM Peak Hour	PHF	0.95
Intersection	Stewart & Musser	Analysis Year	2035 Base + Project	Analysis Period	1> 7:00
File Name	StMu35pw.xus				
Project Description					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	23	115	53	14	72	21	34	588	15	35	574	89

Signal Information			
Cycle, s	65.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	35.0	20.0	0.0	0.0	0.0	0.0
Yellow	4.0	4.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8		2		6
Case Number		6.0		6.0		8.0		8.0
Phase Duration, s		25.0		25.0		40.0		40.0
Change Period, ($Y+R_c$), s		5.0		5.0		5.0		5.0
Max Allow Headway (*MAH*), s		3.3		3.3		0.0		0.0
Queue Clearance Time (g_s), s		7.0		7.7				
Green Extension Time (g_e), s		0.5		0.5		0.0		0.0
Phase Call Probability		1.00		1.00				
Max Out Probability		0.00		0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (*v*), veh/h	24	177		15	98		341		330	383		352
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1282	1757		1195	1785		1714		1680	1743		1613
Queue Service Time (g_s), s	0.9	5.0		0.6	2.6		0.0		7.3	0.0		8.4
Cycle Queue Clearance Time (g_c), s	3.5	5.0		5.7	2.6		6.7		7.3	7.8		8.4
Green Ratio (*g/C*)	0.31	0.31		0.31	0.31		0.54		0.54	0.54		0.54
Capacity (*c*), veh/h	454	540		386	549		984		904	999		869
Volume-to-Capacity Ratio (*X*)	0.053	0.327		0.038	0.178		0.346		0.364	0.383		0.405
Available Capacity (c_a), veh/h	454	540		386	549		984		904	999		869
Back of Queue (*Q*), veh/ln (50th percentile)	0.3	2.0		0.2	1.0		2.4		2.4	2.8		2.7
Queue Storage Ratio (*RQ*) (50th percentile)	0.00	0.00		0.00	0.00		0.00		0.00	0.00		0.00
Uniform Delay (d_1), s/veh	17.8	17.3		19.5	16.5		8.5		8.6	8.7		8.9
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		1.0		1.1	1.1		1.4
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		0.0
Control Delay (*d*), s/veh	17.8	17.5		19.5	16.5		9.4		9.8	9.8		10.3
Level of Service (LOS)	B	B		B	B		A		A	A		B
Approach Delay, s/veh / LOS	17.5	B		16.9	B		9.6	A		10.0	B	
Intersection Delay, s/veh / LOS	11.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.7	B	2.7	B	2.2	B	2.2	B
Bicycle LOS Score / LOS	0.8	A	0.7	A	1.0	A	1.1	A

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MSH*	Intersection	*Stewart & Telegraph*
Agency/Co.	*Solaegui Engineers*	Jurisdiction	*Carson City*
Date Performed	*3/13/2015*	Analysis Year	*2020 Base*
Analysis Time Period	*AM Peak Hour*		

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*290*	*6*	*3*	*510*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*11*	*305*	*6*	*3*	*536*	*5*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*1*	*0*	*3*	*5*	*4*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*1*	*0*	*3*	*5*	*4*	*11*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*11*	*3*		*20*			*4*	
C (m) (veh/h)	*1076*	*1246*		*538*			*624*	
v/c	*0.01*	*0.00*		*0.04*			*0.01*	
95% queue length	*0.03*	*0.01*		*0.12*			*0.02*	
Control Delay (s/veh)	*8.4*	*7.9*		*11.9*			*10.8*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*11.9*			*10.8*		
Approach LOS	--	--	*B*			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	3/13/2015
Analysis Time Period	PM Peak Hour

Site Information

Intersection	Stewart & Telegraph
Jurisdiction	Carson City
Analysis Year	2020 Base

Project Description

East/West Street: Telegraph Street | North/South Street: Stewart Street

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	513	3	4	416	4
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	6	540	3	4	437	4
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal		1			1	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	10	8	10	6	2	8
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	10	8	10	6	2	8
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT		LTR			LTR	
v (veh/h)	6	4		16			28	
C (m) (veh/h)	1142	1088		457			406	
v/c	0.01	0.00		0.04			0.07	
95% queue length	0.02	0.01		0.11			0.22	
Control Delay (s/veh)	8.2	8.3		13.2			14.5	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	13.2			14.5		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Stewart & Telegraph*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*319*	*6*	*4*	*617*	*110*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*126*	*335*	*6*	*4*	*649*	*115*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*20*	*2*	*24*	*5*	*11*	*12*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*21*	*2*	*25*	*5*	*11*	*12*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*126*	*4*		*28*			*48*	
C (m) (veh/h)	*916*	*1277*		*256*			*277*	
v/c	*0.14*	*0.00*		*0.11*			*0.17*	
95% queue length	*0.48*	*0.01*		*0.36*			*0.62*	
Control Delay (s/veh)	*9.6*	*7.8*		*20.8*			*20.7*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*20.8*			*20.7*		
Approach LOS	--	--	*C*			*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Stewart & Telegraph*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	39	639	3	4	460	38
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	41	672	3	4	484	40
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal		1			1	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	132	15	137	6	5	9
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	138	15	144	6	5	9
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT		LTR			LTR	
v (veh/h)	41	4		20			297	
C (m) (veh/h)	1079	983		274			377	
v/c	0.04	0.00		0.07			0.79	
95% queue length	0.12	0.01		0.23			6.68	
Control Delay (s/veh)	8.5	8.7		19.2			42.1	
LOS	A	A		C			E	
Approach Delay (s/veh)	--	--	19.2			42.1		
Approach LOS	--	--	C			E		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MSH*	Intersection	*Stewart & Telegraph*
Agency/Co.	*Solaegui Engineers*	Jurisdiction	*Carson City*
Date Performed	*3/13/2015*	Analysis Year	*2035 Base*
Analysis Time Period	*AM Peak Hour*		

Project Description

East/West Street: *Telegraph Street*	North/South Street: *Stewart Street*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*297*	*6*	*3*	*514*	*5*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*11*	*312*	*6*	*3*	*541*	*5*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*1*	*0*	*3*	*5*	*4*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*1*	*0*	*3*	*5*	*4*	*11*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*11*	*3*		*20*			*4*	
C (m) (veh/h)	*1081*	*1239*		*540*			*633*	
v/c	*0.01*	*0.00*		*0.04*			*0.01*	
95% queue length	*0.03*	*0.01*		*0.12*			*0.02*	
Control Delay (s/veh)	*8.4*	*7.9*		*11.9*			*10.7*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*11.9*			*10.7*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	MSH	Intersection	Stewart & Telegraph
Agency/Co.	Solaegui Engineers	Jurisdiction	Carson City
Date Performed	3/13/2015	Analysis Year	2035 Base
Analysis Time Period	PM Peak Hour		

Project Description

East/West Street: Telegraph Street	North/South Street: Stewart Street
Intersection Orientation: North-South	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	538	3	4	425	4
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	6	566	3	4	447	4
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal		1			1	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	10	8	10	6	2	8
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	10	8	10	6	2	8
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT		LTR			LTR	
v (veh/h)	6	4		16			28	
C (m) (veh/h)	1133	1072		445			395	
v/c	0.01	0.00		0.04			0.07	
95% queue length	0.02	0.01		0.11			0.23	
Control Delay (s/veh)	8.2	8.4		13.4			14.8	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	13.4			14.8		
Approach LOS	--	--	B			B		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Stewart & Telegraph*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*120*	*326*	*6*	*4*	*621*	*11*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*126*	*343*	*6*	*4*	*653*	*11*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*20*	*2*	*24*	*5*	*11*	*12*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*21*	*2*	*25*	*5*	*11*	*12*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*126*	*4*		*28*			*48*	
C (m) (veh/h)	*1015*	*1272*		*289*			*312*	
v/c	*0.12*	*0.00*		*0.10*			*0.15*	
95% queue length	*0.42*	*0.01*		*0.32*			*0.54*	
Control Delay (s/veh)	*9.0*	*7.8*		*18.8*			*18.6*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*18.8*			*18.6*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Stewart & Telegraph*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*39*	*664*	*3*	*4*	*469*	*38*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*41*	*698*	*3*	*4*	*493*	*40*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*132*	*15*	*137*	*6*	*5*	*9*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*138*	*15*	*144*	*6*	*5*	*9*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*41*	*4*		*20*			*297*	
C (m) (veh/h)	*1072*	*966*		*265*			*369*	
v/c	*0.04*	*0.00*		*0.08*			*0.80*	
95% queue length	*0.12*	*0.01*		*0.24*			*6.97*	
Control Delay (s/veh)	*8.5*	*8.7*		*19.7*			*44.8*	
LOS	*A*	*A*		*C*			*E*	
Approach Delay (s/veh)	--	--	*19.7*			*44.8*		
Approach LOS	--	--	*C*			*E*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Stewart & Telegraph*
Jurisdiction	*Carson City*
Analysis Year	

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*39*	*664*	*3*	*4*	*469*	*38*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*41*	*698*	*3*	*4*	*493*	*40*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*132*	*15*	*137*	*6*	*5*	*9*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*138*	*15*	*144*	*6*	*5*	*9*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*		*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*		*L*		*TR*
v (veh/h)	*41*	*4*		*20*		*138*		*159*
C (m) (veh/h)	*1072*	*966*		*265*		*252*		*616*
v/c	*0.04*	*0.00*		*0.08*		*0.55*		*0.26*
95% queue length	*0.12*	*0.01*		*0.24*		*3.00*		*1.03*
Control Delay (s/veh)	*8.5*	*8.7*		*19.7*		*35.3*		*12.9*
LOS	*A*	*A*		*C*		*E*		*B*
Approach Delay (s/veh)	--	--	*19.7*			*23.3*		
Approach LOS	--	--	*C*			*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Stewart & Proctor*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*11*	*298*	*6*	*5*	*505*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*11*	*313*	*6*	*5*	*531*	*8*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*1*	*0*	*2*	*6*	*1*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*1*	*0*	*2*	*6*	*1*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*11*	*5*		*15*			*3*	
C (m) (veh/h)	*1036*	*1287*		*571*			*545*	
v/c	*0.01*	*0.00*		*0.03*			*0.01*	
95% queue length	*0.03*	*0.01*		*0.08*			*0.02*	
Control Delay (s/veh)	*8.5*	*7.8*		*11.5*			*11.6*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*11.5*			*11.6*		
Approach LOS	--	--	*B*			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Stewart & Proctor*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*2*	*506*	*17*	*16*	*414*	*2*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*2*	*532*	*17*	*16*	*435*	*2*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*8*	*3*	*10*	*2*	*2*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*8*	*3*	*10*	*2*	*2*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*2*	*16*		*12*			*21*	
C (m) (veh/h)	*1119*	*1109*		*541*			*463*	
v/c	*0.00*	*0.01*		*0.02*			*0.05*	
95% queue length	*0.01*	*0.04*		*0.07*			*0.14*	
Control Delay (s/veh)	*8.2*	*8.3*		*11.8*			*13.1*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*11.8*			*13.1*		
Approach LOS	--	--	*B*			*B*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Stewart & Proctor*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*114*	*419*	*6*	*5*	*536*	*105*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*120*	*441*	*6*	*5*	*564*	*110*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*18*	*0*	*22*	*6*	*6*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*18*	*0*	*23*	*6*	*6*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*120*	*5*		*20*			*41*	
C (m) (veh/h)	*966*	*1199*		*256*			*316*	
v/c	*0.12*	*0.00*		*0.08*			*0.13*	
95% queue length	*0.42*	*0.01*		*0.25*			*0.44*	
Control Delay (s/veh)	*9.3*	*8.0*		*20.3*			*18.1*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*20.3*			*18.1*		
Approach LOS	--	--	*C*			*C*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Stewart & Proctor*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*37*	*553*	*17*	*17*	*555*	*31*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*38*	*582*	*17*	*17*	*584*	*32*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*120*	*8*	*132*	*2*	*4*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*126*	*8*	*138*	*2*	*4*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*38*	*17*		*14*			*272*	
C (m) (veh/h)	*960*	*1077*		*321*			*342*	
v/c	*0.04*	*0.02*		*0.04*			*0.80*	
95% queue length	*0.12*	*0.05*		*0.14*			*6.63*	
Control Delay (s/veh)	*8.9*	*8.4*		*16.7*			*46.2*	
LOS	*A*	*A*		*C*			*E*	
Approach Delay (s/veh)	--	--	*16.7*			*46.2*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	MSH
Agency/Co.	Solaegui Engineers
Date Performed	3/13/2015
Analysis Time Period	AM Peak Hour

Site Information

Intersection	Stewart & Proctor
Jurisdiction	Carson City
Analysis Year	2035 Base

Project Description

East/West Street: Proctor Street | North/South Street: Stewart Street

Intersection Orientation: North-South | Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	11	305	6	5	509	8
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	11	321	6	5	535	8
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal		1			1	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1	0	2	6	1	8
Peak-Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Hourly Flow Rate, HFR (veh/h)	1	0	2	6	1	8
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT		LTR			LTR	
v (veh/h)	11	5		15			3	
C (m) (veh/h)	1044	1281		571			552	
v/c	0.01	0.00		0.03			0.01	
95% queue length	0.03	0.01		0.08			0.02	
Control Delay (s/veh)	8.5	7.8		11.5			11.6	
LOS	A	A		B			B	
Approach Delay (s/veh)	--	--	11.5			11.6		
Approach LOS	--	--	B			B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*MSH*	Intersection	*Stewart & Proctor*
Agency/Co.	*Solaegui Engineers*	Jurisdiction	*Carson City*
Date Performed	*3/13/2015*	Analysis Year	*2035 Base*
Analysis Time Period	*PM Peak Hour*		

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*2*	*531*	*17*	*16*	*423*	*2*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*2*	*558*	*17*	*16*	*445*	*2*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*8*	*3*	*10*	*2*	*2*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*8*	*3*	*10*	*2*	*2*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*2*	*16*		*12*			*21*	
C (m) (veh/h)	*1110*	*1090*		*527*			*451*	
v/c	*0.00*	*0.01*		*0.02*			*0.05*	
95% queue length	*0.01*	*0.04*		*0.07*			*0.15*	
Control Delay (s/veh)	*8.2*	*8.4*		*12.0*			*13.4*	
LOS	*A*	*A*		*B*			*B*	
Approach Delay (s/veh)	--	--	*12.0*			*13.4*		
Approach LOS	--	--	*B*			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Stewart & Proctor*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*114*	*426*	*6*	*5*	*540*	*105*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*120*	*448*	*6*	*5*	*568*	*110*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*18*	*0*	*22*	*6*	*6*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*18*	*0*	*23*	*6*	*6*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*120*	*5*		*20*			*41*	
C (m) (veh/h)	*974*	*1194*		*256*			*319*	
v/c	*0.12*	*0.00*		*0.08*			*0.13*	
95% queue length	*0.42*	*0.01*		*0.25*			*0.44*	
Control Delay (s/veh)	*9.2*	*8.0*		*20.3*			*17.9*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay (s/veh)	--	--	*20.3*			*17.9*		
Approach LOS	--	--	*C*			*C*		

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Stewart & Proctor*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*37*	*578*	*17*	*17*	*564*	*31*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*38*	*608*	*17*	*17*	*593*	*32*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*120*	*8*	*132*	*2*	*4*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*126*	*8*	*138*	*2*	*4*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*			*LTR*	
v (veh/h)	*38*	*17*		*14*			*272*	
C (m) (veh/h)	*952*	*1058*		*310*			*335*	
v/c	*0.04*	*0.02*		*0.05*			*0.81*	
95% queue length	*0.12*	*0.05*		*0.14*			*6.90*	
Control Delay (s/veh)	*8.9*	*8.5*		*17.2*			*49.0*	
LOS	*A*	*A*		*C*			*E*	
Approach Delay (s/veh)	--	--	*17.2*			*49.0*		
Approach LOS	--	--	*C*			*E*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Stewart & Proctor*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Stewart Street (EB Left)*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*37*	*578*	*17*	*17*	*564*	*31*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*38*	*608*	*17*	*17*	*593*	*32*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*2*	*0*	*0*	*2*	*0*
Configuration	*LT*		*TR*	*LT*		*TR*
Upstream Signal		*1*			*1*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*120*	*8*	*132*	*2*	*4*	*8*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*126*	*8*	*138*	*2*	*4*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*0*	*1*	*0*
Configuration	*L*		*TR*		*LTR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*	*LT*		*LTR*		*L*		*TR*
v (veh/h)	*38*	*17*		*14*		*126*		*146*
C (m) (veh/h)	*952*	*1058*		*310*		*220*		*609*
v/c	*0.04*	*0.02*		*0.05*		*0.57*		*0.24*
95% queue length	*0.12*	*0.05*		*0.14*		*3.17*		*0.93*
Control Delay (s/veh)	*8.9*	*8.5*		*17.2*		*41.2*		*12.8*
LOS	*A*	*A*		*C*		*E*		*B*
Approach Delay (s/veh)	--	--	*17.2*			*26.0*		
Approach LOS	--	--	*C*			*D*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Telegraph & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*4*	*96*	*221*	*20*	
Peak-Hour Factor, PHF	*0.92*	*0.95*	*0.95*	*0.95*	*0.95*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*4*	*101*	*232*	*21*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*12*		*42*			
Peak-Hour Factor, PHF	*0.95*	*0.92*	*0.95*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*12*	*0*	*44*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*232*		*56*				
C (m) (veh/h)		*1486*		*781*				
v/c		*0.16*		*0.07*				
95% queue length		*0.55*		*0.23*				
Control Delay (s/veh)		*7.9*		*10.0*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--	*10.0*					
Approach LOS	--	--	*A*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Telegraph & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*28*	*30*	*70*	*12*	
Peak-Hour Factor, PHF	*0.92*	*0.95*	*0.95*	*0.95*	*0.95*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*29*	*31*	*73*	*12*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*82*		*256*			
Peak-Hour Factor, PHF	*0.95*	*0.92*	*0.95*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*86*	*0*	*269*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*73*		*355*				
C (m) (veh/h)		*1544*		*942*				
v/c		*0.05*		*0.38*				
95% queue length		*0.15*		*1.77*				
Control Delay (s/veh)		*7.4*		*11.1*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*11.1*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Telegraph & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*4*	*96*	*221*	*20*	
Peak-Hour Factor, PHF	*0.92*	*0.95*	*0.95*	*0.95*	*0.95*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*4*	*101*	*232*	*21*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*12*		*42*			
Peak-Hour Factor, PHF	*0.95*	*0.92*	*0.95*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*12*	*0*	*44*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*232*		*56*				
C (m) (veh/h)		*1486*		*781*				
v/c		*0.16*		*0.07*				
95% queue length		*0.55*		*0.23*				
Control Delay (s/veh)		*7.9*		*10.0*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--	*10.0*					
Approach LOS	--	--	*A*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Telegraph & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Telegraph Street* | North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*28*	*30*	*70*	*12*	
Peak-Hour Factor, PHF	*0.92*	*0.95*	*0.95*	*0.95*	*0.95*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*0*	*29*	*31*	*73*	*12*	*0*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*82*		*256*			
Peak-Hour Factor, PHF	*0.95*	*0.92*	*0.95*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR (veh/h)	*86*	*0*	*269*	*0*	*0*	*0*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*0*
Percent Grade (%)	*0*			*0*		
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration		*LR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*73*		*355*				
C (m) (veh/h)		*1544*		*942*				
v/c		*0.05*		*0.38*				
95% queue length		*0.15*		*1.77*				
Control Delay (s/veh)		*7.4*		*11.1*				
LOS		*A*		*B*				
Approach Delay (s/veh)	--	--	*11.1*					
Approach LOS	--	--	*B*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Proctor & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*88*	*3*			*20*	*205*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.92*	*0.92*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*92*	*3*	*0*	*0*	*21*	*215*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*37*		*6*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.95*	*0.92*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*38*	*0*	*6*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*92*						*44*	
C (m) (veh/h)	*1331*						*659*	
v/c	*0.07*						*0.07*	
95% queue length	*0.22*						*0.21*	
Control Delay (s/veh)	*7.9*						*10.9*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*10.9*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Proctor & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2020 Base + Project*

Project Description

East/West Street: *Proctor Street*

North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West*

Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*29*	*21*			*6*	*66*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.92*	*0.92*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*30*	*22*	*0*	*0*	*6*	*69*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*239*		*42*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.95*	*0.92*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*251*	*0*	*44*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*30*						*295*	
C (m) (veh/h)	*1524*						*878*	
v/c	*0.02*						*0.34*	
95% queue length	*0.06*						*1.49*	
Control Delay (s/veh)	*7.4*						*11.2*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*11.2*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*AM Peak Hour*

Site Information

Intersection	*Proctor & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*88*	*3*			*20*	*205*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.92*	*0.92*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*92*	*3*	*0*	*0*	*21*	*215*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*37*		*6*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.95*	*0.92*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*38*	*0*	*6*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*92*						*44*	
C (m) (veh/h)	*1331*						*659*	
v/c	*0.07*						*0.07*	
95% queue length	*0.22*						*0.21*	
Control Delay (s/veh)	*7.9*						*10.9*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*10.9*	
Approach LOS	--	--					*B*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*MSH*
Agency/Co.	*Solaegui Engineers*
Date Performed	*3/13/2015*
Analysis Time Period	*PM Peak Hour*

Site Information

Intersection	*Proctor & Garage Driveway*
Jurisdiction	*Carson City*
Analysis Year	*2035 Base + Project*

Project Description

East/West Street: *Proctor Street* | North/South Street: *Parking Garage Driveway*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*29*	*21*			*6*	*66*
Peak-Hour Factor, PHF	*0.95*	*0.95*	*0.92*	*0.92*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*30*	*22*	*0*	*0*	*6*	*69*
Percent Heavy Vehicles	*2*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*239*		*42*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.95*	*0.92*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*251*	*0*	*44*
Percent Heavy Vehicles	*2*	*0*	*2*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*30*						*295*	
C (m) (veh/h)	*1524*						*878*	
v/c	*0.02*						*0.34*	
95% queue length	*0.06*						*1.49*	
Control Delay (s/veh)	*7.4*						*11.2*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*11.2*	
Approach LOS	--	--					*B*	